Manufacturers Record
Reg. U. S. Patent Office

REFERENCE
DO NOT LOAN

A Discredited Theory

"There is tangible evidence on all sides, at this very moment, to refute completely the theory of spending to save. Yet, we are asked blindly and mutely to follow that theory in the same old groove which has led us in a circle to the point whence we started. We are told to continue on the theory which has been so realistically discredited."

— U. S. Senator Harry F. Byrd
in this issue

STACKS

June, 1938

This Kind of "History" Is Worth Real Money

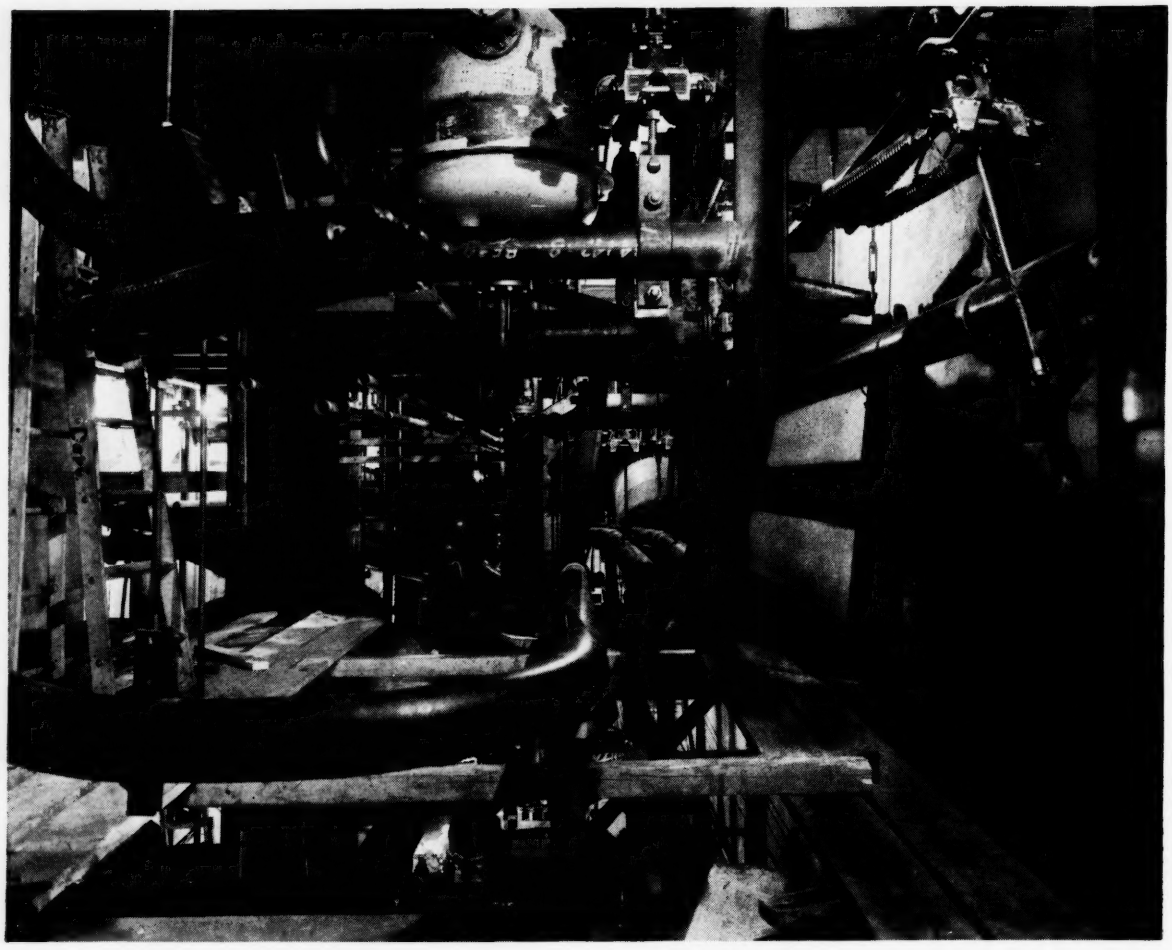
An important part of the story of Grinnell Prefabrication is told by Grinnell's three plants, conveniently located, equipped with huge layout tables, form-cutting machines, pre-heating and stress-relieving equipment, exclusive hydraulic extruding machines . . . equipment that the "field-built" job must do without . . . *but that's only part of the story* . . .

There's a "history," too, that goes along with Grinnell equipment . . . a history of specialized piping experience . . . of prefabricated units for power plants, mining operations, factories, electric generating stations, and many others.

It's a history we draw upon every day in interpreting the plans of engineers. And it provides the right answer to a million questions involved in transforming blue prints into correctly-engineered sub-assemblies, easily welded together in the field. This specialized piping experience has been found invaluable by the engineers who say "Give the plans to Grinnell." Grinnell Company, Inc., Executive Offices, Providence, R. I. Branch offices in principal cities.

PREFABRICATION BY GRINNELL

WHENEVER PIPING IS INVOLVED



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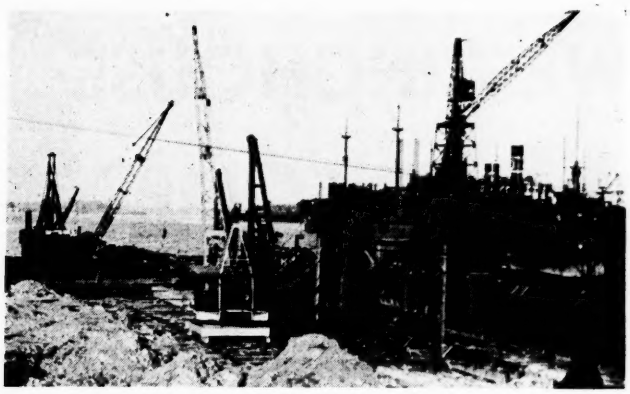

Excavating in preparation for the new construction at Bethlehem Shipbuilding Corporation's Key Highway plant

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

by the

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PUBLISHERS OF CONSTRUCTION AND BLUE BOOK OF SOUTHERN PROGRESS

Member A.B.C.

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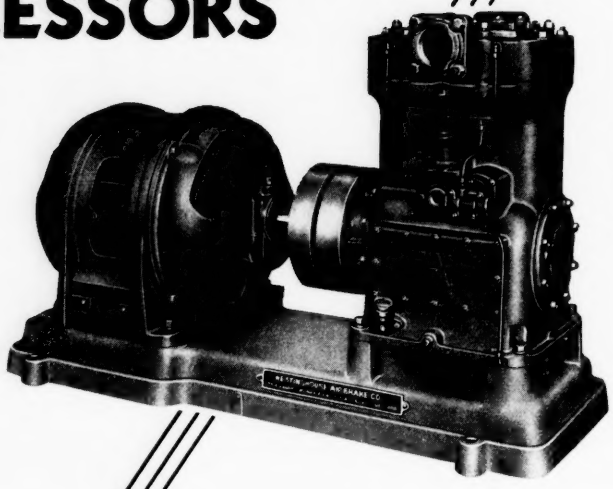
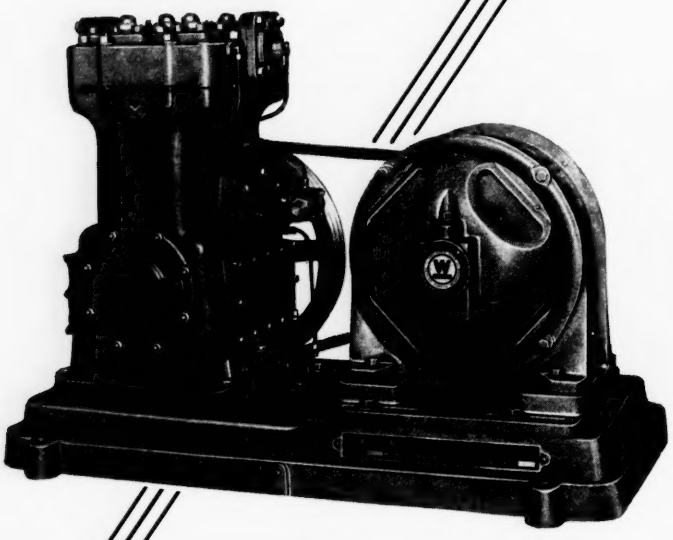


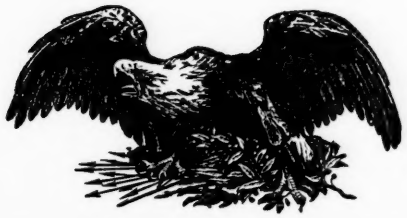
TWO cylinder, single stage moderate speed, water-cooled type for continuous operation against pressures up to 125 pounds . . . Its lubricating system is of the pressure type, and interlocked with a positive unloader so that no air can be compressed if oil supply is low . . . It has quiet, efficient disc valves, and crank shaft is mounted on ball bearings.



Furnished with or without coupling, or as a complete belt or direct connected motor driven unit, mounted on a bed plate. Available in sizes ranging from 46 to 157 cu. ft. displacement. Greater displacements up to 314 cu. ft. may be had by a combination of two compressors, with a double fly wheel, driven by one motor . . . These compressors are compact, efficient, and durable. Long trouble-free service is assured. » » » » »

WESTINGHOUSE AIR BRAKE CO.

Industrial Division **Pittsburgh, Pa.**



OPPORTUNITY FOR ENTERPRISE

FOR 56 years the MANUFACTURERS RECORD has been devoted to the upbuilding of the South believing in its natural wealth and unrivaled industrial opportunities. That this belief has been justified is attested by the growth that has taken place. The Southern states are unquestionably the country's most inviting field for profitable development.

In compiling the data for the Blue Book of Southern Progress for publication later this month, we who have been accustomed to studying the South from the standpoint of current development and future growth find new cause for amazement every year in the tremendous sweep of an industrial empire in the making for which there exists every advantage. It is difficult to avoid superlatives in discussing factual information about natural wealth such as has been given to no other section on earth.

Mineralogically the South has resources sufficient for practically unlimited demand. But even so only the surface has been scratched and geologists agree that exploration will undoubtedly uncover further vast reserves. This is graphically illustrated by the oil supply. In 1914 it was estimated that proven oil reserves in the entire country amounted to 6,000,000,000 barrels, yet far more than this amount has been produced by the Southern states alone since 1920 and discoveries of new oil bearing lands of wide extent are constantly being made. Under the waters of the Gulf of Mexico profitable wells are being dug at depths of nine and ten thousand feet and no one knows the extent of the store house there.

Elsewhere in this issue attention is called to the reserves of non-metallic minerals in Arkansas, yet here again the state has not been exhaustively surveyed. And so the story may go on for every one of the Southern states.

But this is only part of the picture. In the South are produced raw materials to supply the demands of this country and for export as well. Preeminent among them are cotton and timber. Cotton needs no emphasis, but the South possesses approximately one-half of the country's forest land—a fact which is not generally known. From these two resources are produced a present day miracle, cellulose, the product of a million uses. Sugar, sweet potatoes, soy beans, all or most of which are mainly produced in the South, form the basis of raw materials employed in manufacture and contribute to the diversity and extent of the South's Chemical industry.

The South is regarded as an agricultural region. Its cash farm income last year amounted to $2,851,052,000, indicative of a great market which is augmented by the $1,500,000,000 paid in wages to employees in manufacturing establishments.

It is estimated that $10,000,000,000 is the capital investment in Southern manufacturing.

Space prevents a detailed summary of the South's raw materials and the use up to the present time to which they have been put. Sulphur, coal, iron ore, limestone, phosphate, bauxite and lesser known minerals indispensable to commerce which are found in practically all of the Southern area.

The chemical industry recognizes that in this field in the future it will have its greatest expansion. An indication of this is in the utilization of Southern pine by industries using wood pulp which already have invested more than 200 million dollars in Southern plants.

The 1938 Blue Book of Southern Progress presents facts and figures that tell a thrilling story of creative enterprise and the basis for future progress.

As we see it—

The Cotton Problem

The MANUFACTURERS RECORD constantly has warned of the imbroglio into which our cotton trade is fast developing. That the situation rapidly is becoming desperate is obvious from the production statistics recently released by the U. S. Department of Agriculture.

Production of cotton in the United States in 1937 exceeded the previous estimate of 18,746,000 bales by 200,000 bales or a total of nearly 2,000,000 bales more than the next highest year's production. This brings the total world production for 1937-38 to approximately 37,000,000 bales which, together with the carryover, makes a total of over 50,000,000 bales.

While production has mounted thus, from facts otherwise obtainable, consumption has declined markedly and unless an unexpected and rapid upturn takes place, *we may confidently anticipate embarking upon next year with a world carryover in excess of* 20,000,000 *bales, which is not much less than the previous ten year world production average.* Of this, about one third will be United States carryover.

The total world consumption of all cottons for the first half of the current year was slightly over 14,000,000 bales and with consumption declining it is reasonable to assume the total for the year will probably not exceed 27,400,000 bales. World mill consumption for the same period ending January 31, 1938, declined 1,129,000 bales, more than half this number being United States cotton.

To complicate matters still further, it is probable that foreign cotton production during 1937-38 will also reach an all-time record. This latter however, is in accord with past performance since foreign production has increased at a greater rate than has American cotton for more than forty years, and during the last ten years has risen from ten to eighteen million bales or more.

The price of cotton in the United States undoubtedly has been affected adversely through the uncertainty engendered by reason of the failure to know when and how much cotton the government intends to dispose of from time to time. Until August 1939, when the new crop control bill provides that the government shall not dispose of more than 300,000 bales in any one month or 1,500,000 bales in any one year, it is probable that this baleful influence will continue.

In the meantime plantings under the new bill indicate that this year between 28 and 29 million acres have been planted, which is about six million less than last year. Crop reports to date tend to show that possibly there will be a smaller acreage production due to early unfavorable climatic conditions, but the per acre yield is likely to be comparable with last year. One other factor may also reduce the coming season's production and that is the boll weevil. Lack of early winter freezing temperatures indicate the possibility of heavy damage in this direction—*i.e.* heavy as compared with immediate past years. Last year the reduction from full yield per acre from this cause was only 5.3 percent and 4.9 percent in 1936.

If the grade and staple length of American cotton were improving as it should and could be, the outlook would be greatly improved. Of the upland crop in 1937-38, the average staple length was less than in 1936-37, and though the percentage of cottons ranging from 7/8 in. to 31/32 in. increased, those of a longer staple materially declined. In addition, those cottons less than 7/8 in. increased while untenderable cotton exceeded 2,000,000 bales or over 12 percent of the season's entire crop.

The American cotton situation, serious as it is and not improved by the administration, is helped even less by the growers themselves who *could* produce a better cotton in grade and staple if they tried.

Unfair Freight Rates

The Interstate Commerce Commission at a hearing to be held at Buffalo, New York, July 12th will consider the case the South will present for freight rates based on an equality with the rates of other sections.

There may have been a time when in the development of localities far removed from populous centers it was advisable to make concessions in freight rates to promote industrial growth. This was not unusual when great movements of men and capital to the West were under way. Industrial development and business progress in the South under present conditions is being handicapped by the fact that others have rates that enable them to ship their goods into the Southern area at a much lower freight cost than that area can ship its goods to such favored places. 500 miles in the South's viewpoint, and the South is right, is 500 miles whether it leads out of the South or leads into the South.

It is of no advantage to the country to have the South lag behind by not being able to ship its products on at least equal terms with what other sections are doing. The development of the South means the enrichment of the nation and it is a short-sighted policy that would restrict its trade by freight rates that are unfair.

The South asks no advantage over other sections. It asks only that on commodities of the same class it shall be charged the same rate mile for mile and ton for ton that other sections pay for an equal distance.

The MANUFACTURERS RECORD recognizes the indispensable part that our rail lines under private management have taken in the development of the country. It believes they should receive every encouragement and cooperation and as stated many times, that they remain in private hands and be enabled to resume to the fullest extent by cooperation, financial and otherwise, the industrial development work in which they always took a leading part and, too, that their service may continue unimpaired.

But in spite of any temporary advantage the present rates may be giving Southern roads, it is to their

As we see it—

(*Continued*)

interest and doubtless they will agree to promote industry so that by increased volume of shipments coming out of the South or within Southern borders their revenue in the long run will be greatly increased. Railroad tariff schedules are a matter for experts but in the interest of fairness and reasonableness the present unfair charges should be adjusted. Opposition from Northern shippers is frankly from their fear of Southern competition. Some months ago we called attention to a conference in New England promoted by the governor of New Hampshire "to present a united defense against Southern competition which seeks more favorable freight rates for that territory."

We said then and we repeat that if the thought expressed above prevailed, the conference was for an unworthy motive. The South is not seeking any advantage over other sections. It considers the right to live and is perfectly willing to let live.

The question is for the Interstate Commerce Commission but it should be recognized that it is an opportunity in a time of depression to help industry to move ahead.

Collective Bargaining Agreements

Analyses of the Wagner Labor Relations Act have caused writers in legal journals and elsewhere to work overtime in order to keep abreast of the Labor Relations Board and the courts as a variety of decisions have added to the confusion the statute has created. Questions of interpretation, application and administration have arisen but so far the problems confronting employers who already have bargained "collectively" have had little consideration.

An important departure from this concentration on current litigation appears in the Spring, 1938, issue of *Law and Contempory Problems*, a quarterly published by the Duke Law School which is devoted to a symposium of eleven articles on "Collective Bargaining Under the Wagner Act." A number of the articles present analyses of the Act's principal provisions and proposals for its amendment. But supplementing these is a group of articles which penetrate to problems arising out of collective labor agreements which, the Act assumes, are to solve American labor troubles.

One of these articles, by Professor D. A. McCabe, labor economist of Princeton University, is a study of the machinery for the adjustment of disputes in the new collective agreements. The picture Dr. McCabe draws is disconcerting. Few agreements have ignored the problem of dispute adjustment but few seem to have fashioned machinery adequate to the task. The principal defect is the failure to provide against delays in the adjustment process, and such delays, in his experience, constitute an important source of strikes.

Assuming satisfactorily drafted agreements, what assurance is there of compliance so long as non-compliance is attended by no practicable penalty? Professor H. D. Wolf, labor economist of the University of North Carolina, addresses himself to this problem, arriving at the conclusion that the time has come for the devising of means for the enforcement of the union's obligations which are more effective than resort to court action. His proposal is that collective agreements be registered with a federal board. Refusal by a union to register an agreement should relieve the employer of any obligation to bargain further with it. Only those agreements which contain adequate provision for the settlement of grievances and minor disputes by the parties themselves would be accepted for registration. Major violations would be taken before the Board which would be empowered to act by order enforceable, by resort to the courts.

It seems evident from a reading of these studies that the Wagner Act, in imposing the duty to bargain collectively, is leading industry, labor, and the government into a nest of new problems. Collective agreements can be mere scraps of paper, or, worse still, incitements to dispute. In some industries they have laid the basis for industrial peace. Before that result can become widespread however, much more study must be devoted to the problems along the lines opened up in this symposium.

Filming the Steel Industry

The technicolor moving picture which has been made available to the public by the United States Steel Corporation was viewed in Baltimore by large audiences of interested business and professional men.

It is a remarkable work of color photography and is an exposition of the various intricate processes connected with the making of steel. Starting with views of iron ore coming from the Messaba Range, thence into the holds of Great Lake carriers that take it to the mills that mold and shape it, through processes that produce steel girders for office buildings and great plants, the picture shows the production of billets, rolled sheets, steel rails, car wheels axles on to the making of fine wire to serve man's purposes. The skill of the chemist, engineer and workman upon whose knowledge and technique depend the exactness of the product and its quality are made unforgettable in vivid scenes.

Photographs made possible by the pouring of molten metal which evidently gave necessary illumination were equally as well done in the darker views before furnace doors were opened. The interior of electric infernos and fine wire travelling at express speed were alike in detail and accuracy.

The romance and inspiration of industry have been presented in an unforgettable way. One comes away from the theatre with a greater appreciation of the wide reach and importance of industry, and in this case the steel industry, as a living, vital factor necessary to man's welfare.

Our Phosphate Problem

BY

Charles J. Brand

Executive Secretary and Treasurer, The National Fertilizer Association

WITHIN recent weeks there have been references in the press to the phosphate problem in this country. The impression has been left by these articles that this country has been jeopardizing its future by the exportation of phosphate rock; that there is an insufficient production of phosphates suitable for plant food to supply the demand of our farmers; and that but for the development of new processes and phosphate products by the Tennessee Valley Authority the country would perish by phosphate starvation. A further claim is that our exportation of phosphate rock endangers peace because certain compounds of phosphorus are used in war. Let us look at the facts and how they disprove all such theories.

For the past ten years we have mined on the average 3,000,000 tons of phosphate rock per year, 1,000,000 tons of which were exported and 2,000,000 tons consumed in this country. Our present production of phosphate rock comes from mines in Florida and Tennessee, with the exception of a small tonnage coming from the Rocky Mountain States. There are approximately 700,000,000 tons of high-grade phosphate rock located in Florida and Tennessee alone, enough to last at our average rate of production well over 200 years. In the Mountain States of Idaho, Montana, Utah, and Wyoming there are known deposits of nearly 7,000,000,000 tons of high-grade phosphate rock, enough to last 2,000 years more. Even at our highest peak year of consumption and export, slightly over 4,000,000 tons, we have in sight well over 1,800 years' supply of high-grade rock, to say nothing of the large known deposits of low-grade rock and phosphatic limestones which modern methods of flotation and ore-dressing will be able to concentrate for utilization when necessary. Certainly we need no concern ourselves as to our phosphate reserves, for there is reason to believe other high-grade deposits will be discovered and better methods of recovery perfected to conserve deposits through higher recovery of values. Principal reserves of high-grade phosphate rock in the United States are shown in Table I below.

Table I. Phosphate Rock Reserves of the United States

State	*Long Tons*
Florida	546,000,000
Tennessee	103,000,000
South Carolina	10,000,000
Kentucky	1,000,000
Arkansas	20,000,000
Idaho	5,000,000,000
Montana	392,000,000
Utah	327,000,000
Wyoming	116,000,000
Total	6,515,000,000

The United States owns 40 per cent of the known high-grade phosphate deposits of the world. She only has 15 per cent of the productive agricultural acreage of the world. It is an accepted fact that phosphates are necessary for the production of crops. What action could be more provocative of war than for a nation or group of nations that control an abundant supply, and the only supply of a life necessity like phosphate, to refuse to export it to other nations who need it to preserve their very existence. As a matter of fact, phosphates are scattered all over the globe and undoubtedly many deposits are yet to be discovered. The accompanying Table II lists the known high-grade phosphate deposits of the world. In addition, it is estimated that in north Africa alone there are deposits of low-grade phosphates, easily concentrated, of at least 450 billion tons.

Table II. World Phosphate Rock Reserves

Location of Deposit	*Long Tons*
United States	6,515,000,000
Europe	5,891,200,000
Africa	3,637,100,000
Asia, including Japan and Mandated Islands	37,100,000
Island deposits	155,900,000
Australia	400,000
South America	1,000,000
Mexico	211,100,000
Canada	181,000
Total	16,448,981,000

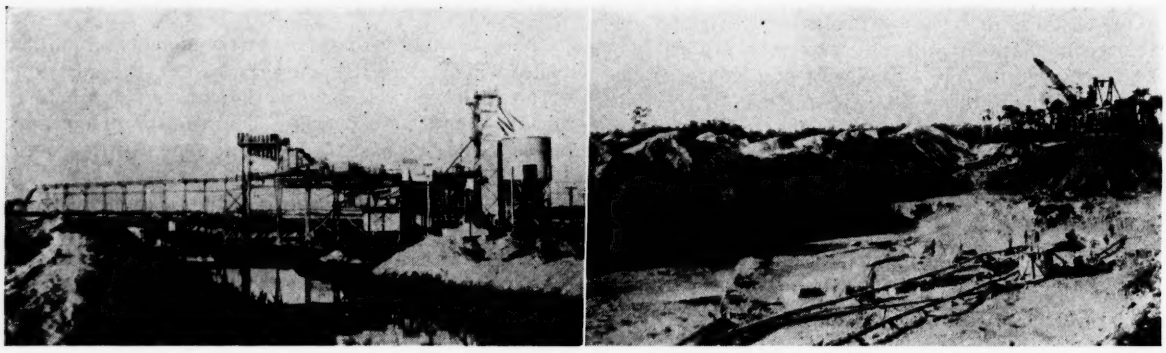
These figures clearly show that there is no world problem of phosphate reserves or supply. With world-wide distribution of phosphate rock deposits, it is left largely to the economics of production to decide which deposits supply the world market.

The form in which phosphate is generally used in fertilizer is normal superphosphate, a product resulting from the treatment of phosphate rock with sulphuric acid and containing 18 to 20 per cent available phosphoric acid. It has been made in this country for 80 years and during all those years private enterprise has supplied every demand.

A concentrated superphosphate called variously triple superphosphate, double superphosphate, and treble superphosphate, and containing 42 to 48 per cent of available phosphoric acid, has been produced and sold in this country in quantities to meet every demand for at least 30 years. There are seven plants manufacturing concentrated superphosphate in the United States, besides the plant of the TVA. These seven plants have an annual capacity of 213,000 tons, yet in no past

(Continued on page 40)

Left—A phosphate rock washing plant. Right—Mining phosphate rock in Florida



Pump Priming A Failure While Deficits Mount

BY

Harry F. Byrd

U. S. Senator from Virginia

AS the 1938 fiscal year of the United States Government draws to a close there appears to be good reason for expecting that the 1930's might be historically recorded as a decade of deficits.

On the thirtieth day of June the Federal treasury will show a deficit for the eighth consecutive year.

On the next day, July 1, there begins another fiscal year which is certain to be the ninth consecutive year of deficits.

Eight of these nine deficit years will be years in the billion dollar deficit class. That is a record never dreamed of before this decade.

Have a look at the deficit now:

1931—deficit $480,000,000.

1932—deficit $2,700,000,000.

1933—deficit $2,600,000,000.

1934—deficit $3,600,000,000.

1935—deficit $3,000,000,000.

1936—deficit $2,500,000,000 (with $1,700,000,000 of bonus deducted).

1937 — deficit $2,150,000,000 (with $556,000,000 of bonus deducted).

1938—deficit upwards of $2,000,000,000.

And so we arrive at 1939 with the prospect of another annual deficit, reaching perhaps to five billion dollars, the largest in history. There is still a deficit on the business ledger of the nation. There is still the same, or greater deficit, on the social ledger of the nation. The relief and unemployed loads are still abnormally heavy. There is no evidence that pump priming is constructive, socially or economically.

Pump priming was largely responsible for the deficits up to now—vast deficits which were said to be necessary to overcome conditions caused by the 1929 depression. Now it is said to be necessary to spend into another series of deficits to overcome another depression which came despite, and with, the unprecedented expenditures of the past eight years.

It was said that the depression of 1929 came as the result of private over-spending and over speculating.

Can it be that the depression of 1937-38 came as the result of public over-spending and over speculating?

We have spent great sums of money—billions of dollars—priming the pump, recovering, and relieving. At the end of eight years we are asked to do it all over again because there is another depression—do it all over again with greater spending, and deeper deficits.

There is tangible evidence on all sides, at this very moment, to refute completely the theory of spending to save. Yet, we are asked blindly and mutely to follow that theory in the same old groove which has led us in a circle to the point whence we started. We are told to continue on the theory which has been so realistically discredited.

Those who would as much as wince at spending whatever is necessary to feed and clothe and shelter those in want are hard to find.

But those chronic and professional advocates of huge spending are everywhere to be heard proclaiming in the name of charity the things which hamper recovery.

For, when they proclaim for government spending they are proclaiming for government meddling; they are proclaiming for government competition with private enterprise; they are proclaiming for government regulation and regimentation; they are proclaiming for government waste and extravagance; and though they deny it, they are proclaiming for excessive taxation—ultimately, if not now.

These are the things which naturally accompany government spending. These are the things which must be expected with government spending. These are the things which the nation must be prepared to accept if it is to have huge, abnormal government spending.

These things should not be overlooked by business men and farmers alike who come to the Federal government for loans at a rate of interest lower than it can be obtained through private channels.

If the government furnishes the money, it is only reasonable to expect the government to insist upon a voice in the use to which the money is put.

These are only a few of the subjects to be taken into consideration as those interested look into the question of public spending with a view of determining what is best for the more lasting good to the greatest possible number of persons.

Any study of the spending must start with the following record of Federal expenditures:

1930—expenditures $3,300,000,000.

1931—expenditures $3,600,000,000.

1932 — expenditures $3,900,000,000 (with $500,000,000 subscription to RFC deducted).

1933—expenditures $3,400,000,000.

1934—expenditures $5,100,000,000.

1935—expenditures $6,400,000,000.

1936 — expenditures $6,870,000,000 (with $1,700,000,000 bonus deducted).

1937 — expenditures $7,400,000,000 (with $556,000,000 bonus deducted).

1938—expenditures $8,000,000,000 (estimated).

1939—expenditures $11,500,000,000 (estimated on the basis of appropriations).

Thus it is seen that, excluding the soldiers' bonus, expenditures of the Federal government have mounted progressively each year.

The result has been deficit after deficit, with revenues failing by far to keep up with the spending, despite the fact that the Federal tax bill has grown by leaps and bounds.

Now, the government enters a new fiscal year faced with falling revenues, although there is no reduction in the rates of taxation, and at the same time spending more money than it ever has before in any peace time year.

It goes into a new year with an all time high debt lapping upward and upward toward 38 billion dollars of direct obligations, and at least five billion dollars more in contingent liabilities. Of the latter there is no way of telling how much actual debt there is in that total.

It is upon this fiscal foundation that recent reforms are founded. It is upon this foundation that the government is seeking to build recovery.

True liberalism must always be backlogged by strong, sound, conservative fiscal policies if progress is to be perpetuated as a step to a more enlightened and prosperous future.

A debt ridden nation with constantly recurring deficits offers no hope to its underprivileged. A debt ridden nation with constantly recurring deficits offers puny guidance to recovery and prosperity.

Paying one's bills is always constructive; it is never destructive. That goes for governments as well as individuals.

State Article Series Termed Valuable Contribution to South's Development

In the May issue of the MANUFACTURERS RECORD was printed the map and article relating to Alabama. This was the first of a series of similar maps and articles which the MANUFACTURERS RECORD plans to publish in succeeding issues. The second in this series is presented on the following pages.

The purpose of this featured series is to give in the graphic form of a map, factual information regarding the raw materials and transportation facilities in each of the Southern states. Supplementing this is the article on the reverse side of the map, which sets forth additional salient data in a concise manner and is designed to give basic facts from which both present and potential industrialists throughout the country may see readily the manufacturing advantages we have claimed constantly for this region. The value and importance of this series is attested by the letters appearing below.

We trust that those seeking additional information will write us in order to avail themselves of the extensive material in our files.

Because of requests for reprints, arrangements have been made to furnish them at the rate of ten dollars per hundred. Orders for smaller quantities will be filled while the supply lasts by furnishing copies of the MANUFACTURERS RECORD containing the map and descriptive data at twenty-five cents each.

Complementing this series are the articles appearing in each issue of the MANUFACTURERS RECORD relating to the expenditures of the railroads in the various Southern states. In addition to emphasizing the contribution which the railroads make to the wellbeing of the state, the value of their purchases for materials, equipment and supplies indicate one of the enormous markets already existing. The growth of the railroads should be synonomous with the expansion of industry thus creating an ever expanding market for diversified commerce.

Most Illuminating

I think this is a very fine presentation, and I congratulate you upon adopting this feature. I feel sure that these articles will be most helpful and illuminating and will serve to give the country at large a correct picture of the possibilities and opportunities of a great section of our country.

CLYDE R. HOEY,
Governor State of North Carolina.

An Invaluable Series

Arkansas has hidden its light under a bushel for more than one hundred years. We have been slow to examine and measure our hidden treasure of undeveloped wealth and backward about sharing with others the limited information we do have concerning our resources.

If Arkansas is to take advantage of and benefit from the current trends toward industrial migration, expansion and decentralization, we must do two things: First, we must take an inventory of our advantages and resources, and, secondly, we must make this information available to those who can make the best use of it, for their benefit and ours.

The MANUFACTURERS RECORD is to be commended for its current series of articles and maps relating to industrial opportunities of the Southern States, in which excellent use is made of material and information already available. Arkansas will benefit from it, and the series should prove invaluable not only to industrialists considering Southern locations but to those already established in the South.

Arkansas would indeed be shortsighted if it did not follow up and amplify this introduction given by the MANUFACTURERS RECORD. It also devolves upon the State to welcome industrialists thus attracted to it with a guaranty of statutory stability, reasonable tax rates, equitable

Governor Carl E. Bailey

freight rates, and a workman's compensation law. It is my hope that Arkansas will have these things to offer.

CARL E. BAILEY,
Governor, State of Arkansas.

A Vivid Delineation

I have a copy of your magazine with the article on Alabama. I enjoyed reading this vivid delineation of the resources and industrial opportunities of that fine State and feel sure that similar articles presenting the many advantages of the Southeastern States in this most interesting manner will be of wonderful value.

FRED P. CONE,
Governor, State of Florida.

A Valuable Contribution

Your new series of articles on the material resources and industrial opportunities in the South gives promise of being a valuable contribution to the cause of industrial development in this section of the nation.

R. W. LECHE,
Governor, State of Louisiana.

A Clear and Concise Picture

I wish to commend you highly for your foresight in putting before all interested people a clear and concise picture of Alabama. It is one of the finest ways I know to get the proper information to people who are too busy to read detailed literature on the various subjects involved.

WALTER B. JONES,
State Geologist of Alabama.

Acknowledgement

In compiling the information necessary to produce the map and article relating to the State of Arkansas which appears on the following pages, valuable cooperation has been generously extended from numerous sources. The MANUFACTURERS RECORD wishes to acknowledge its appreciation to the many individuals and organizations who contributed and in particular to: Dr. George C. Branner, State Geologist of Arkansas; Mr. L. A. Henry, Engineer-Director, Arkansas State Planning Board; Captain I. F. Eldridge, Regional Survey Director, U. S. Southern Forest Survey; and Mr. F. A. Leland, Chairman, Southwestern Freight Bureau.

Arkansas-Its Development and Future Opportunity Based on Wealth of Resources

ARKANSAS, sometimes referred to as the "Bear State," was described by the first white man to see it, Fernando De Soto, as a "fair and pleasant land." Included in the area covered by the Louisiana Province, the territory was for 37 years under the sovereignty of Spain, but in 1800 it again reverted by treaty to France and in 1803 finally became a territory of the United States, within the District of Louisiana—St. Louis being the capital. In 1806, the District of Arkansas came into existence, but was not officially recognized as such until 1808. It was, therefore as a Territory that Arkansas continued until its admission in 1836 as the twenty-fifth state in the Union.

With an area of 53,335 square miles, Arkansas ranks twenty-sixth in size and twenty-third in population which in 1937 was estimated at 2,037,000. The colored race comprise approximately one-quarter of this number.

Agriculture

ARKANSAS is predominantly agricultural, both from the point of view of employment as well as source of income. About sixty per cent of the gainfully employed population are agriculturally engaged. The cash farm income totaled almost $143,000,000 in 1937—$100,000,000 from crops and $33,000,000 from livestock products.

The principal farm crop is cotton, which is grown on a major scale in about two thirds of the state's counties. Of the 6,990,000 farm crop acres, nearly one-half, 3,099,000 acres, were devoted to cotton last year and produced 1,904,000 bales of lint, yielding an income of approximately $68,000,000. In addition, crude cottonseed products yielded $24,000,000 more. Other agricultural crops raised in Arkansas are as diversified as in most Southern states with rice and peaches contributing a large portion.

Manufactures and Banks

THE value of Arkansas' manufactured products in 1935 was $122,447,739 or $41,342,337 more than the 1933 value of $81,105,402. By far the most outstanding manufacture was lumber and timber products whose value amounted to $25,175,617 and employed approximately 14,000 people. The next important manufacture was petroleum refining with products valued at $10,476,049. Although Arkansas ranks third in the production of cotton, only four textile mills are in the State. These had an aggregate production approaching $1,500,000 in 1935. Altogether, $74,450,609 was expended for materials, containers, fuel and power, while over fourteen per cent of the gainfully employed population was engaged in manufactures. This does not include mining.

The 1937 State legislature provided for the establishment of an Agricultural and Industrial Commission to survey the state for its industrial possibilities and to make the findings available for those seeking locations for new or expanding industries. In addition, a proposed constitutional amendment will be voted upon in the coming November election to permit the legislature to enact a Workman's Compensation Law.

The banks of the state numbering 223 whose capital stock totals $14,112,000 had, in 1937, individual deposits amounting to $163,387,000 and aggregate resources of $188,116,000 while the savings deposits were $42,969,000.

Climate

THE climate of Arkansas closely conforms to that of the other Southern states being largely temperate with extremes of temperature rarely occurring except in the northern part of the Arkansas valley and certain sections of the Ozark plateau. The average annual precipitation of forty-eight inches is distributed evenly throughout the year's average of 105 rainy days varying only from 4.2 inches in January to 3.8 inches in July. The temperature, which averages 61.4° Fah. throughout the year, ranges from 41.3° Fah. in January to 80.5° Fah. in July.

Transportation

ONE of the essential factors in industrial development is adequate transportation facilities. In this respect Arkansas is well equipped with nearly 5,000 miles of railroad, approximately 10,000 miles of highways, and extensive barge service on the several navigable waterways traversing the State.

The railroads, ninety per cent of which are operated by six lines with through-connections to all parts of the country, provide ample service from almost every part of the state to near and far markets besides rapid transportation to Gulf ports for foreign and coast-wise shipments.

Of the highway system, more than twenty-five per cent is surfaced and nearly seventy-five per cent are gravelled all-season highways suitable for present day passenger and freight demands. In addition, the waterways provide means of freight transportation throughout the length of the Mississippi on the eastern border of the state and also by other rivers, notably the Arkansas through the central portion of the state via Pine Bluff and Little Rock to Fort Smith.

Commercial airlines operate across the state with connections at Memphis, Tennessee, to virtually all parts of the country and will be extended further by inauguration of the new airline soon to go into service between Memphis and Florida. There are twenty-seven airports and fields located throughout the state.

Timber

THE forest land of Arkansas, estimated to include 22,000,000 acres on which there is a total stand of about 25,000,000,000 feet of saw timber, has been the source of a large lumber industry and will doubtless so continue for many years. The northeastern part of the State originally possessed a dense virgin hardwood forest of excellent quality. This being in proximity to northern markets consuming hardwoods and being valuable agricultural land has resulted in some diminution of the forests, yet hardwoods in quantity are available for commercial use. In the remainder of the state, timber grows in abundance to supply an enormous lumber market as well as the demand from pulp and paper mills.

Much of the state's annual cut of over one billion board feet of timber is consumed in furniture, pulp and paper, mill work, acetic acid, methanol and other chemicals.

Old growth now covers approximately 1,500,000 acres, second growth covers approximately 19,500,000 acres and the balance of 1,000,000 acres is unproductive or lacking in reforestation.

The United States Southern Forest Survey has not yet completed its survey of the entire state—unit number five still remaining to be done. However, according to general classifications, units one and two are predominantly forested with river-bottom hardwoods, units three and four are a fairly general mixture of shortleaf and loblolly pines and unit five is believed to be essentially upland hardwoods. Actual acreage in the four units surveyed to date includes:

ARKANSAS
Units 1 and 2

Forest type	*Area in acres*
Red gum—mixed hardwoods	673,200
Mixed oaks and hardwoods	1,044,300
Cypress—tupelo	267,200
Overcup oak—pecan	460,400
Cottonwood—willow	282,100
Hackberry, elm, ash	643,700
Willow and pin oak	501,200
Upland hardwood	170,400
Scrub oak—scrub hardwood	185,100
Nonturpentine pine—hardwood	57,100
Total	4,284,700

ARKANSAS
Units 3 and 4

Forest type	*Area in acres*
Shortleaf pine	2,085,000
Shortleaf—loblolly	739,600
Loblolly pine	923,000
Shortleaf—hardwoods	1,420,900
Loblolly—hardwoods	1,154,400
Upland hardwoods	1,653,300
Scrub hardwoods	113,800
Bottomland hardwoods	1,344,500
Cypress—tupelo	40,300
Total	9,474,800

Mining and Minerals

IN addition to agricultural, lumbering and manufacturing industries, Arkansas supports a growing mining industry that is destined to grow far beyond its present status.

On the over page map are indicated those minerals which now are commercially produced. The total annual value during the past ten years averages approximately $25,000,000. However, this is not an adequate indication of the state's mineral resources for though certain products such as petroleum, natural gas, bauxite, coal, manganese and zinc are generally known to be produced in Arkansas, with bauxite comprising ninety-five per cent of the country's production, the diversity and quantity of other minerals at present produced, or known to exist, is much greater. The minerals shown on the map are, in virtually every instance, also to be found in several other counties even though commercial production is not engaged in.

It is reasonable to assume, based upon past performance, that, mineralogically, Arkansas will continue to be a fuel producing state. In this connection, the reserves of pertoleum, gas and coal, which at present comprise the major portion of minerals produced, are believed sufficiently large for continued normal demand. Lignite, though only produced in one county, is known to exist in at least ten others. Its extent and quality have yet to be determined. Among the other minerals whose reserves are judged to be sufficient for normal demand are bauxite, lead, manganese and zinc.

The minerals of Arkansas whose reserves are practically unlimited for any demand are confined to those of a non-metallic character and include deposits of chalk and marl in the southwestern part of the state which are of sufficient quality and quantity to furnish any demand for lime. The clay deposits of Arkansas are widely distributed and are present in a number of varieties. In northern Arkansas are numerous deposits of glass sand the aggregate extent of which is practically unlimited.

Limestone and dolomite of great extent occur throughout the state's northern area. Several of the Arkansas marbles are equally extensive while the black marbles are unique in the United States.

The mineral waters, known internationally, can be obtained in unlimited quantities in the Ouachita Mountains and the Ozark Plateaus. In the same localities is an abundant supply of tripoli, while slate deposits of a vari-colored nature together with building stone, crushed and broken stone, and sand and gravel are abundant. The extent of whetstone rock deposits in central and western Arkansas are also practically unlimited.

The diamond mine in Pike county is the only known source of diamonds on the North American continent. Approximately ten per cent of the output are gems, the remainder comprising industrial diamonds.

Supplementing the above mentioned minerals, barite, iron ore, quicksilver, silver, and titanium are all known to be present in the state. It remains for further examination to demonstrate the quantity and quality of both these and the other mineral deposits which are not now worked commercially.

Labor and Wages

LOW population density is a characteristic exemplified in Arkansas by the fact that almost eighty per cent of the population is classified as rural. This is a condition favorable to industry in its recent trend toward decentralization and location of plants outside metropolitan centers. Of the white population, 99.3 per cent are native born Americans. The negro percentages are approximately the same.

Little Rock, the state capital, has a population of 81,679 which, together with sixteen other cities whose populations range between 5,000 and 32,000, comprise sixty-eight per cent of the total urban population of the state.

The prevailing rates of pay for common labor are twenty cents to forty cents hourly, thirty cents to fifty cents hourly for unskilled labor and thirty-five cents to $1.25 per hour for skilled labor.

Arkansas labor is abundant, generally intelligent and industrious; and during the past several years, there have been scarcely any labor disturbances throughout the various industries of the state.

Electric Power

THE existing electric power generating facilities of Arkansas are more than adequate for such demands as may be anticipated in the immediacy and with full provision for future expansion.

During 1937, production totaled 277,691,000 kilowatt hours of which 151,401,000 was produced from the five hydroelectric plants. Altogether, there are twenty-four companies operating fifty-four plants in the state. These with their generating capacity are:

3	Arkansas Power & Light Company hydroelectric plants	65,980 kilowatts
4	Arkansas Power & Light Company steam plants	39,400 "
2	Arkansas Missouri Power Corporation hydroelectric plants	1,040 "
2	Arkansas Missouri Power Corporation oil engine plants	1,840 "
19	Miscellaneous steam plants	38,564 "
26	Miscellaneous plants	9,302 "
		156,126 kilowatts

Taxation

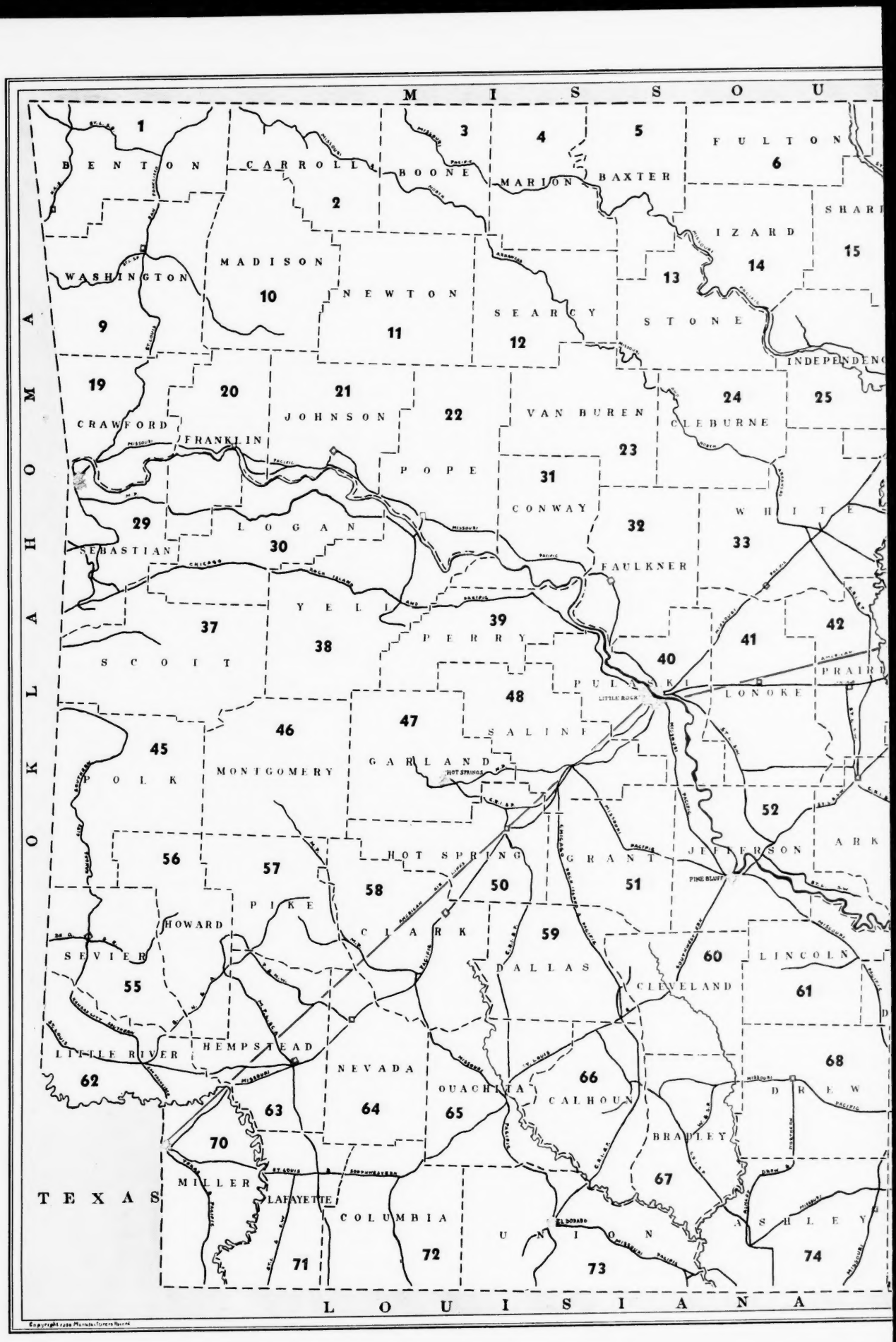
TWELVE years ago, in 1926, Arkansas declared by constitutional amendment that all capital invested in textile mills should be exempt from taxation for a period of seven years. At the present time, a movement is under way to re-amend the State Constitution so as to permit tax exemptions on any and all new or expanding industries. Such procedure would be in conformity with others of the Southern states.

Tax rates in the various counties of Arkansas range from $2.57 to $4.35 per $100 of assessed valuation. The basis of assessment is fifty per cent of true valuation and this is liberally construed.

There is a franchise tax on corporations of $1.10 per $1,000 of capital stock, the minimum tax being $11.00. The income tax rate for industry is a flat two per cent with $1,500 exemption allowed.

Severance taxes on raw materials are 2.6 per cent of gross cash market value at point of severance on all minerals except coal which is one cent per short ton, and manganese which is 10.1 cents per long ton. On minerals sold from state owned lands and waterways, the rates are: 2.5 cents per cubic yard on sand; five cents per cubic yard on gravel; six cents per short ton on coal; oil, gas, and casinghead gas are subject to ⅛th the value produced and saved.

On all retail sales within the state, there is a two per cent tax.


MISSOURI
OKLAHOMA
TEXAS
LOUISIANA
1 BENTON
2 WASHINGTON
3 CARROLL
4 BOONE
5 MARION
6 FULTON
7 SHARP
8 IZARD
9 STONE
10 MADISON
11 NEWTON
12 SEARCY
13 INDEPENDENCE
14 JACKSON
15 WOODRUFF
16 CRAWFORD
17 FRANKLIN
18 JOHNSON
19 POPE
20 VAN BUREN
21 CLEBURNE
22 WHITE
23 CONWAY
24 FAULKNER
25 PRAIRIE
26 LOGAN
27 SEBASTIAN
28 YELL
29 PERRY
30 SCOTT
31 PULASKI
32 LONOKE
33 POLK
34 MONTGOMERY
35 GARLAND
36 SALINE
37 HOT SPRING
38 GRANT
39 JEFFERSON
40 ARKANSAS
41 HOWARD
42 PIKE
43 CLARK
44 SEVIER
45 DALLAS
46 CLEVELAND
47 LINCOLN
48 LITTLE RIVER
49 HEMPSTEAD
50 NEVADA
51 OUACHITA
52 CALHOUN
53 DREW
54 BRADLEY
55 ASHLEY
56 MILLER
57 LAFAYETTE
58 COLUMBIA
59 UNION
60 OUACHITA
61 CALHOUN
62 DREW
63 BRADLEY
64 ASHLEY
65 MILLER
66 LAFAYETTE
67 COLUMBIA
68 UNION
69 OUACHITA
70 CALHOUN
71 DREW
72 BRADLEY
73 ASHLEY
74 MILLER
LITTLE ROCK
HOT SPRINGS
PINE BLUFF
EL DORADO
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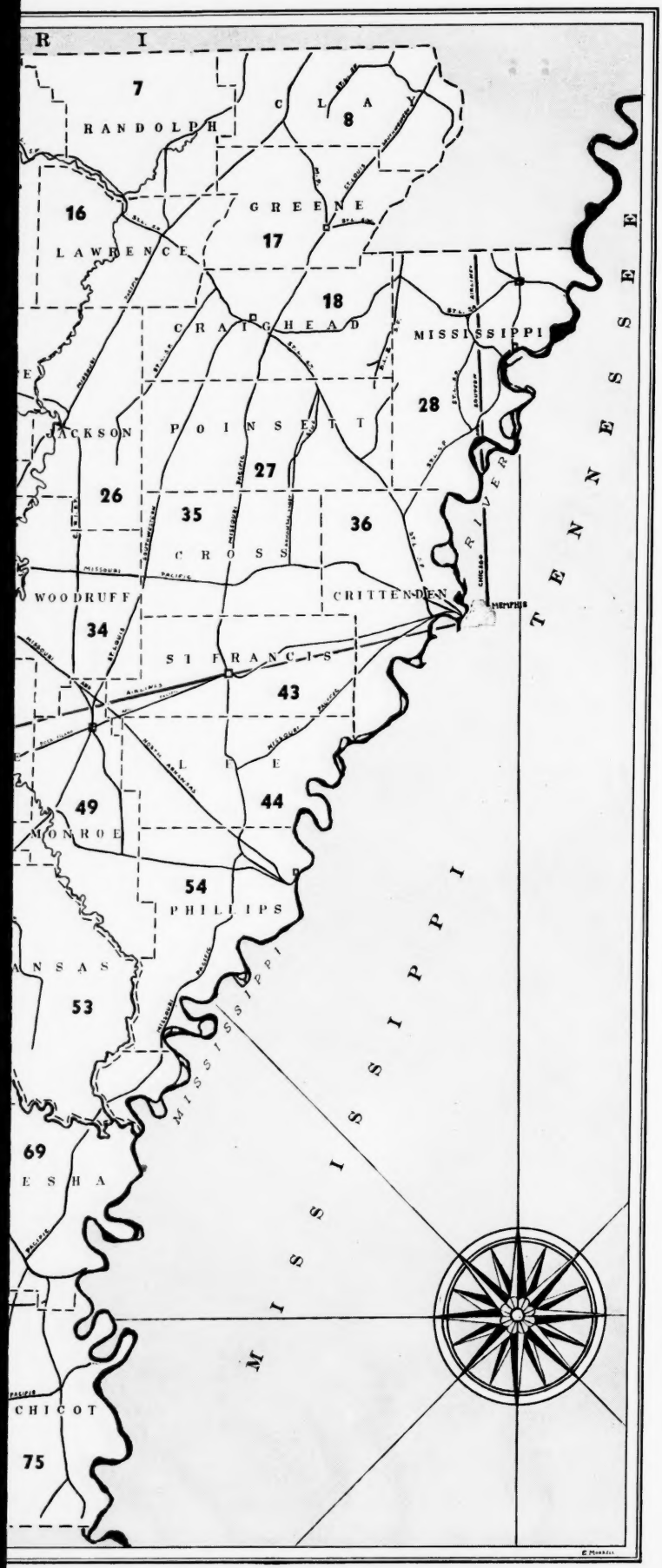


ARKANSAS

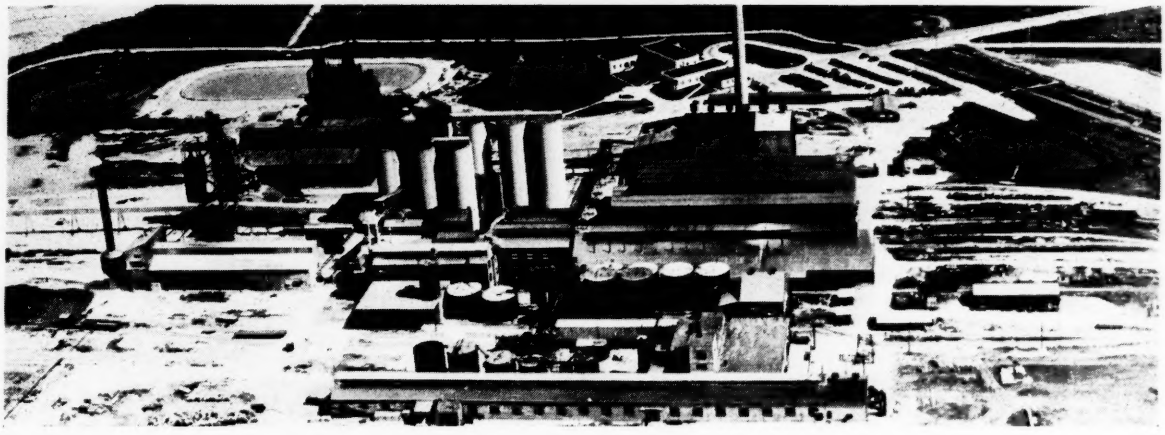
Its principal raw materials and transportation facilities, with facts on the reverse side pertaining to its industrial growth and opportunities for industry.

Mineral — *Counties in which mineral is commercially produced*

Antimony—55 and 56
Asphalt—57
Bauxite—40 and 48
Bentonite—48 and 50
Chalk—55, 56 and 62
Cinnabar—57
Clay—17, 18, 29, 40, 48, 50, 52, 55, 58, 63, 70 and 73
Coal—9, 20, 21, 22, 29, 30, 32 and 37
Copper—12 and 40
Diamonds—57
Dolomite—1 and 15
Fuller's earth—40
Glass sand—3 and 14
Gravel—1 to 10, 13 to 21, 25 to 27, 29, 30, 32 to 35, 37 to 39, 43, 45 to 48, 50 to 52, 54 to 68, 70 to 72, 74 and 75
Gypsum—57
Lead—3, 11, 40, 46, 50 and 55
Lignite—65
Limestone for building—1, 12, 14, 15, 25, 26, 40 and 50
Limestone for burning—1, 2, 3, 9, 12, 14, 25, 40, 47 and 55
Lithographic stone—14
Manganese—13, 14 and 25
Marble—4, 5, 12, 14 and 25
Natural gas—19, 20, 21, 22, 29, 64, 65, 70 and 73
Nephelite syenite—40, 47, 48 and 50
Novaculite—47 and 50
Onyx marble—2
Petroleum—64, 65, 70, 71, 72 and 73
Phosphate rock—25
Quartz crystals—46, 47 and 48
Rutile—50
Sand—4, 5, 7, 8, 16, 19, 22, 25, 26, 29, 30, 31, 35, 38, 40, 42, 43, 46, 48, 50, 54, 55, 57, 58, 60, 62, 64 to 66, 69, 71, 72 and 75
Sandstone—3 to 5, 9, 12, 14 to 16, 19, 21 to 25, 29, 31 to 33, 40, 41, 47, 50, 57, 58 and 62
Slate—40, 45, 46 and 47
Tripoli—1 and 50
Zinc—3, 4, 11, 12, 15, 16, 48 and 55

Natural gas is available for consumption in the following counties:—1, 9, 16, 18 to 22, 25, 26, 29 to 33, 37, 38, 40, 41, 47, 48, 50 to 54, 56, 58, 59, 61 to 65, 67 to 75.

———— Railroads
———— Navigable Rivers
———— Airlines
□ Airports—also at principal cities printed in red.



Southern Alkali Corporation's plant at Corpus Christi, Texas

Southern Alkali Corporation to Make Chlorine—Texas Plant to Be Extended

BY
F. W. Daniels

Chief Engineer
The H. K. Ferguson Company

SOUTHERN Alkali Corporation, in its search for a plant site in the South for the production of soda ash and caustic soda, was primarily concerned with three items: satisfactory supply of raw materials, low production costs, and low distribution costs.

These three necessities were found in the vicinity of Corpus Christi, Texas. This city, which was an unimproved coastal town of less than a thousand people at the time General Zachary Taylor made it the site for his encampment during the Mexican war, is now a growing city whose present population comprises about 55,000 people. Since the advent of oil nearby, Corpus Christi has become a focal point for coastwise shipping, and in addition is one of the important centers on the Gulf coast for the shipment of oil to foreign countries. Its port facilities are among the most up-to-date.

The plant site of Southern Alkali Corporation which was the pioneer alkali producer in the South, comprises some 400 acres of land at Avery Point on Nueces Bay, just on the outskirts of the city of Corpus Christi.

In order for ships to dock at the plant site, it was necessary to extend the ship channel from the main turning basin of the port. This extension was done by the Nueces County Navigation District. At the western end of this extension, a modern reinforced concrete pier was constructed with transit sheds for storage space for finished products awaiting shipment.

The plant is on the main San Antonio-Corpus Christi line of the Missouri Pacific Railroad connected by means of private sidings.

The plant, including the pier, was engineered and constructed by the H. K. Ferguson Company of Cleveland, Ohio, from plans made by the engineers of the Columbia Chemical Division of the Pittsburgh Plate Glass Company, who, together with the American Cyanamid Company, jointly own Southern Alkali Corporation. The entire plant is so laid out that any one unit may be materially expanded without interference with other units.

An integral part of the plant is the 60-mile pipe line from Palangana Salt Dome, near Benavides in Duval County, Texas, to the plant site. This line is the longest pipe line of its kind in the world. Salt brine, which is developed at the dome, flows entirely by gravity to a large open reservoir adjacent to the plant. The pipe is cast iron with special mechanical joints, and has partition valves at inter-

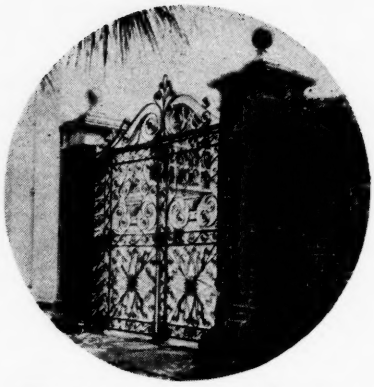
(Continued on page 58)

Interior of the cell building in which chlorine is made

Charleston, S. C.

—*advancing industrially*

does not find it incompatible to preserve historic beauty

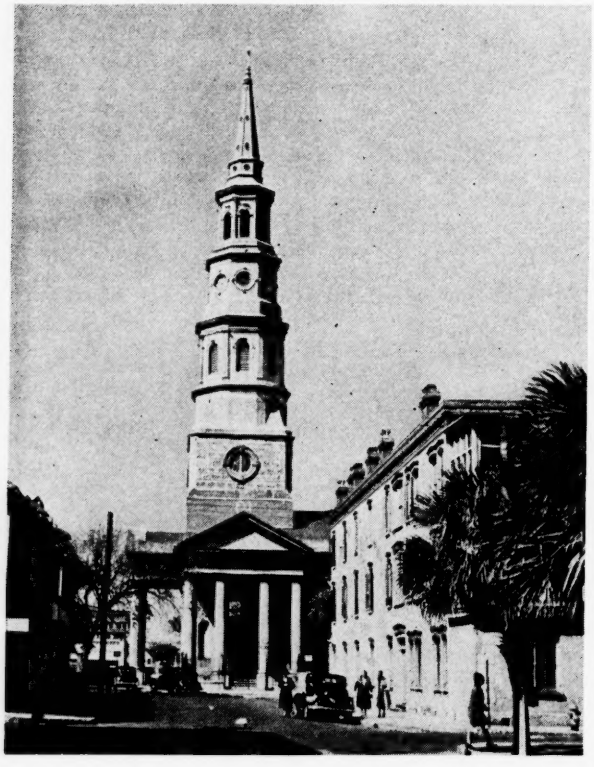


The famous St. Michael's gates

IT has been said of Charleston that in its love for the beautiful and the aesthetic, it preserves its atmosphere not solely because of tradition, although the traditional is well maintained, but because the people of Charleston prefer what is beautiful rather than altogether material. All of which is not to say Charleston does not appreciate what is worthwhile in modern progress. It is in fact, making progress of a substantial, definite kind.

Charleston has been a beautiful city from the earliest days. When life flowed at a less hurried pace than now, prime consideration was given always in dwelling places and public buildings to beauty that endures. Its architecture, its gardens and artistic gateways that are maintained largely in their original state are bringing an increasing number of visitors to Charleston each year.

The third St. Philip's Church built in 1838 *on the site of the original* 1681-2 *edifice and adjudged one of the finest in America*



George Garner writing in the MANUFACTURERS RECORD in 1926 said "Charleston undoubtedly is one of the most charming and engaging cities in all the world. The most important point to the true American who has visited Charleston, especially if he has visited many other cities, is that Charleston shall remain Charleston, that the Charleston of the future still shall be the American Charleston, the serene, the contented Charleston—the aristocratic Charleston, if you will—of the present day. Prodigiously rich in historical traditions and the true spirit of early America through all the changes and chances of our restless American life."

There was a time when those who like to be thought of as "live wires" and "go-getters" displayed an urge for sky scrapers and had plans for city expansion that might have made Charleston just another city of the modern type. Fortunately it was decided to retain the beauty of the old city with its glorious gardens, many of which were planned and planted long ago.

It has been found by the increase in visitors attracted, that Charleston appeals to an increasing number every year so that as a policy it has paid in dollars and, in turn, has brought with it commercial progress and development. An important seaport with a back country surrounding it rich in resources and raw materials and with ample power as well as facilities for industrial development, there has been encouraging industrial progress.

From January 1st to April 15th, which is regarded as the tourist season, the estimated number of visitors increased from 32,000 in 1926 to 200,000 in 1937.

Charleston has kept up its old homes, church edifices and public buildings, which are beautiful and incomparable and at the same time has progressed commercially.

Charleston is the county seat of Charleston County. The city directory gives the population as 62,265, of which 97.4 per cent are native born. A city of Americans with American ideals, it presents a contrast to cities of other sections of the country more highly industrialized but with a complexity of problems and many languages as well as differing ideals. The contrast is more apparent when it is considered that some of our Northern cities have populations containing 68 and 70 per cent of foreign stock, which is to say, of people either born abroad or with one or both parents born abroad.

With a fine deep water harbor, this South Carolina metropolis' transport needs are well served by water, air, rail and highways. It has in addition ample educational advantages and abundant labor. Nine ocean steamship lines operate out of Charleston besides other lines which operate over inside water ways. The city is served by 4 railroads. There is also a belt line railroad operated by the Charleston Port Utilities Commission connecting all trunk line railroads entering the city and serving industrial sections and wharves. In addition

to its fine municipal airport, there is now under construction at an adjacent location, a transatlantic seaplane base. Besides these the Navy Department and the Coast Guard operate air bases at the Charleston Navy Yard. At this Navy Yard, government vessels are constructed and repaired, while facilities are available for emergency repairs of large commercial vessels. Commercial and marine work are a major activity of the port.

Charleston boasts of 56 manufacturing plants, 125 wholesale establishments and 972 retail stores. Its average mean temperature is 66 degrees and it is entitled to boast with Los Angeles of its sunshine, because in all the country it is second in sunshine hours only to the California city.

The port development authorities in speaking of the skilled and semi-skilled labor available, state that the supply is drawn "from native born citizens of high intelligence and unquestioned loyalty to these United States, and communism and subversive influences are unknown." Here is a point that may be stressed at a time when the alien influence has been felt to an increasing extent in labor controversies. The circular from which the above is taken says further "there has never been a serious labor dissension in this section. The labor organizations are intelligently and conservatively conducted to the mutual benefit of employers and employees and a fine spirit of cooperation exists among all branches." Wages are just, based upon a moderate scale of living costs.

The South Carolina Power Company operates a modern 25,000 H. P. steam plant in Charleston and a hydro plant of similar capacity on the Savannah River. Its transmission system extends over fifteen counties and is interconnected with the Georgia Power Company system as well as the South Carolina Electric and Gas Company. Adequate and dependable power service is assured.

Foreign trade increased from $18,136,094 in 1936 to $25,306,694 in 1937, a growth of 35 per cent. Imports gained in valuation from $5,163,962 to $8,552,300 while exports advanced from $12,973,121 to $16,746,394. Custom receipts showed a similar encouraging growth. The Charleston district, including Georgetown, had a total of receipts in 1937 of $822,762 as compared to $551,187 in 1936. The outbound tonnage of the port, according to the latest figures available, totaled 1,796,000 tons in 1936 while the value of the cargoes, $96,823,000, was 17 million dollars over the preceding year.

Charleston's harbor is protected by two jetties, 12 feet above medium low water the greater part of their length. With a completely marked channel, entrance is easy by day and night. From the sea to the inner ends of the jetties, the channel is 1,000 feet wide with a depth of 30 feet. The channel being completely marked, ships may approach from the bar to their berth in as short a time as 20 minutes. Navigation is open throughout the year and unlimited anchorage ground is available.

Space will not permit going into detail concerning the various activities of the port, its shipments of cotton, fertilizer and a long list of commodities. It is a city of unusual opportunities based upon its facilities and accessible raw materials. It is the center of a prolific agricultural region with crops growing 276 days of the year so that from whatever standpoint Charleston is considered, whether viewing its notable history, its compelling charm sensed by every visitor, or the alert spirit that is prompting its progress along sane lines, Charleston is to be envied as one place, as the heading of this article indicates, which finds it compatible in its industrial advance to preserve its historic beauty.

Top—U. S. Custom House, begun in 1850 and completed after Appomattox. Upper Center—The Villa Margherita. Lower Center—Home of the Daughters of the Confederacy. Bottom—The College of Charleston, founded in 1770, is the oldest municipal college in America

Railway Expenditures in Arkansas Over $28,000,000 Last Year

THE importance of the railroads in the economic life of Arkansas is strikingly illustrated by the fact that expenditures in the state of some, but not all, of the railroads for labor, materials, supplies, fuel and taxes totaled approximately one million dollars every thirteen days of last year. Their total expenditures in Arkansas for these purposes in 1937 was in excess of $28,000,000. Nor do the above figures include railway expenditures for special services, traveling expenses, telephone service, advertising and other miscellaneous items in the railway budget. Total expenditures of all railroads for all purposes in Arkansas would probably run above the thirty million mark. And it must be remembered that 1937 as a year of sub-normal railway activity.

Railroads have played a major role in the growth and development of Arkansas for three-quarters of a century. When Arkansas' pioneer railroad, the Memphis and Little Rock, was projected westward from the Mississippi River, opposite Memphis, the interior of the state was largely an unbroken wilderness except for a few isolated settlements located here and there along the navigable streams. Little Rock, with a population of 2,167 in 1850, and El Dorado, with 1,925, were the largest towns in the state.

Agricultural and industrial development followed rapidly upon the heels of railway development. By 1860 thirty-eight miles of railroad were in operation and other lines were under construction. Completed mileage increased to 256 miles in 1870 and to 896 miles in 1880. During the next two decades the railway mileage of Arkansas nearly quadrupled, climbing to 2,113 miles in 1890 and to 3,341 miles in 1900. In the fifty-year period ending with 1900, Arkansas' population increased from 210,000 to 1,312,000; cotton production mounted from 65,000 bales to 813,000 bales; numerous towns sprang into existence; hundreds of industries were established, and the aggregate wealth of the state increased many fold. Since 1900 some 1,300 miles of railway mileage have been added, so that today Arkansas is served by nearly 5,000 miles of railway lines traversing all but one of the state's seventy-five counties and providing hundreds of cities, towns and agricultural communities all-year-round daily transportation service.

Upon the service provided by these railroads the people of Arkansas depend for passenger transportation, for their daily newspapers, their magazines, their mail and parcel post and express, and, most important of all, for the prompt and dependable transportation to all parts of the country of their cotton, cottonseed, rice, grain, fruits, vegetables, livestock, lumber, coal, bauxite, and their numerous manufactured products.

And yet transportation service—vital as it is to every community—is by no means the railroads' only major contribution to the well-being of the state. It is with these other aspects of railway operations that this article proposes to deal.

To get the picture clearly, to understand the important place which the railway industry occupies in the economic structure of Arkansas, it should be noted that Arkansas' thirty-odd railway properties represent slightly more than one-eighth of the total assessed value of all taxable real and personal property in the state.

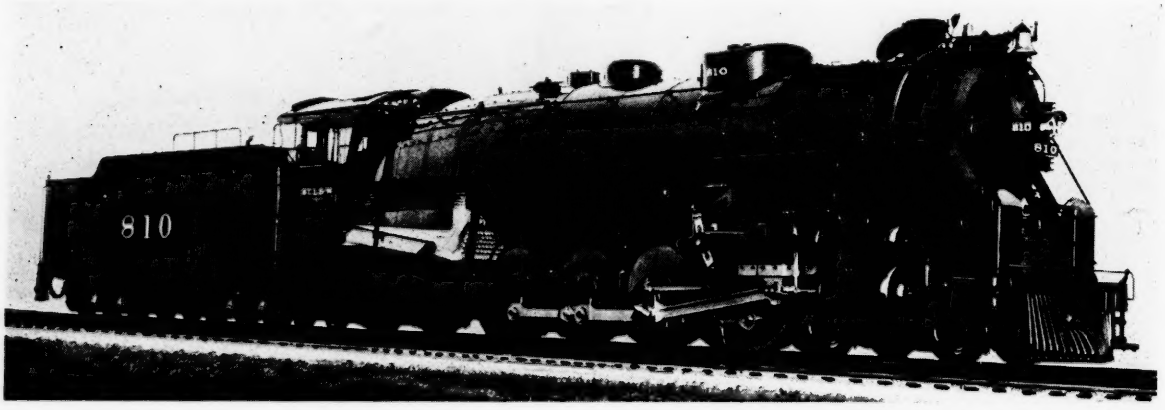
Aside from their thousands of miles of track and their hundreds of passenger and freight stations in Arkansas, the railroads own and operate important locomotive and car repair plants, as well as tie treating plants and supply depots, and they have general or division headquarters at various points in the state. In several of these centers of railway activity — notably Little Rock, North Little Rock, Pine Bluff, Fort Smith, El Dorado, Harrison, Van Buren, Fayetteville, Paragould, McGehee, and Texarkana—railway expenditures are an important if not a dominant factor in local prosperity.

Railway expenditures, however, reach into every part of the state and affect the economic life of nearly every community. The widespread distribution of railway purchases is illustrated by the fact that in 1937 the railroads bought materials, supplies or fuel from hundreds of firms in no fewer than 321 cities and towns located in seventy-three of the state's seventy-five counties.

Railroads are among the largest consumers of the products of industry, and the millions of dollars which they annually spend for Arkansas products add substantially to the revenues of the state's industries.

Take the lumber industry, for instance. Normally the railroads buy and use approximately one-fifth of the entire lumber output in the United States. Forests and mills of Arkansas supply the rail-

One of five locomotives planned, designed and constructed by the St. Louis Southwestern Railway Lines at the Pine Bluff, Ark., shops



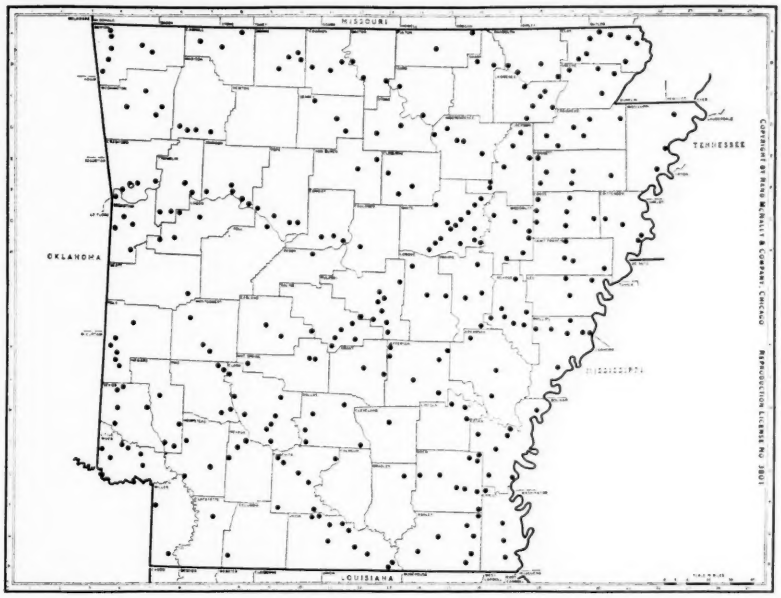
roads with large quantities of cross ties, as well as millions of feet of hard and soft-wood lumber for the construction and repair of freight cars and for numerous other purposes. Arkansas lumber purchased by the railroads is not limited to use within the state, but is shipped into many states for use at points hundreds or thousands of miles from the points of production.

Arkansas woodworking plants supply the railroads with hardwood tool handles and other specialty products, while products of the state's furniture factories and other mills consuming wood products ultimately reach the railroads through distributors in various parts of the country.

Normally using around one-fourth of all the coal mined in the United States, the railroads are among the leading consumers of Arkansas coal, and their purchases contribute substantially to employment in this important industry. The same is true of the oil industry. Railroads consume about one-fifth of the fuel oil produced in the country, and large quantities of other petroleum products are used by the railroads for various purposes. The oil wells and refineries of Arkansas share in this market.

Foundry products represent another important group of items used extensively by the railroads. Under normal conditions, the railroads use more than one-third of all steel castings produced in the United States. When railroads are in a prosperous condition, Arkansas foundries share in the benefits of increased railway buying.

Still other important items on the railroads' shopping list in Arkansas are sand, gravel, cement, water, ice, stationery and printing, office supplies, tools, as well as fresh vegetables and fruits and dairy products consumed in dining cars. The railroads also spend substantial sums in the state each year for telephone and telegraph service, electric current and advertising.



In Arkansas the railroads purchased materials and supplies in 321 cities and towns located in 73 of the state's 75 counties

Of course, railway buying power depends largely upon earnings. When their earnings and credit are at par or better, the railroads spend large sums for deferred maintenance and additions and improvements, and their purchases of such materials as cross ties, poles, bridge timbers, sawed lumber, tools, cement, sand, gravel, foundry products and other materials are heavy. On the other hand, when earnings are unsatisfactory and they find it difficult to meet the bare costs of operations and fixed charges, maintenance is deferred wherever possible, new construction is suspended, few new locomotives and cars are added, and, in consequence, thousands of industries that supply the railroads with materials and supplies are heavy sufferers. The decline in railway purchases during the depression period brought distress to many cities and towns and threw thousands of workers out of employment. Its disastrous effects were felt in every state in the union.

Railroad ties by the acre in the tie treating yards of the Wood Preserving Corp., at North Little Rock, Ark. The dark ties have been treated

There is no better way to illustrate the great stake which industry and labor generally have in maintaining high railway purchasing power than by contrasting railway expenditures in 1929, a comparatively prosperous year when the railroads earned a return of 4.84 per cent on their investment and had a net income, after meeting fixed charges, of 897 million dollars, with those of 1932, the depression year when they earned a return of only 1.25 per cent on their investment and suffered a net deficit, after meeting fixed charges, of 139 million dollars.

In 1929 the railroads of the United States spent 321 million dollars for new equipment; in 1932 their expenditures for new equipment were only 36 million dollars.

In 1929 they spent 532 million dollars for additions and betterments to roadway and structures; in 1932 they spent only 131 million for such purposes.

Cross tie installations in this period

(*Continued on page 56*)

May Contracts $44,833,000

WHILE the $44,833,000 total of contracts let in the South during May was less than that for the preceding month, the figure represented a wide variety of building and industrial projects, which coupled with several important proposed industrial enterprises, greatly strengthened the construction prospects for the future.

Further expansion of the South's paper making industry was definitely announced in the form of a manufactory for cigarette paper, a new industry on this side of the Atlantic. It is to be established at a cost of $2,000,000 at Brevard, near Asheville, in western North Carolina. The Ecusta Paper Co., a newly organized concern backed by French interests, let the contract. Cigarette paper is now mainly imported from France.

One of the country's large building material manufacturers revealed preliminary plans for a second new large plant in the South as another made the award for a previously announced Virginia plant. Johns-Manville Co., of New York, contracted for erection of a plant at Jarratt, Va. The award went to a Baltimore construction firm and will provide the buildings to house equipment to manufacture insulating board from wood pulp. The three buildings will cover a total area of 200 by 1,200 feet.

The National Gypsum Co., of Buffalo, N. Y., will build its second large new Southern plant at Savannah, Ga., at a cost of approximately $1,000,000. Raw material would be brought from Nova Scotia and made into wallboard, gypsum lath and partition tile in the Port Wentworth section of the Georgia seaport. The company is now opening its new $2,500,000 plant at Mobile, Ala., where a new fibreboard will be manufactured.

Corrugated paper products are to be produced at a new plant to be established at Richmond, Va. The Dixie Container Corp. has leased 50,000 square feet of the old American Locomotive plant and will spend $250,000 for improvements and the machinery capable of turning out 15,000 tons of paper products annually. A new $100,000 tipple and coal cleaning plant project was revealed for the Pursglove Gas Coal Corp., at Pursglove, W. Va. A sand floatation cleaning unit for this enterprise is being furnished by the United Engineers and Constructors, of Philadelphia.

Surveys are now being carried forward by the Texas Company are preliminary to construction of 250 miles of 12-inch pipe line from the oil fields at Houma, La., to the company's refinery at Port Arthur, Tex. The project is estimated to involve expenditure of from $2,000,000 to $2,500,000 and feeders would empty into the new line from various fields, although no crude would be transported from the area east of Bayou Lafourche, in Louisiana.

A $500,000 race track project was proposed in the Grant District of Hancock County of West Virginia. A. J. Boyles, president of the Charles Town Jockey Club is connected with the new sporting enterprise, which will include a grandstand to accommodate 8,000 spectators and stables for 800 horses. The Veterans Bureau in Washington received a $1,202,000 low proposal from a Chicago construction firm for erecting the new neuropsychopathic hospital at Murfreesboro, Tenn. Cubic foot content of the eleven buildings will be 3,222,000.

Significant in the shipbuilding field was the construction being carried on at the Key Highway plant in Baltimore of the Bethlehem Shipbuilding Co., which is preparing to move a 20,000-ton floating dry dock from its Sparrows Point plant, located further down the Patapsco at the same city. A Baltimore construction concern is now operating an impressive array of heavy equipment, such as pile drivers, clamshell buckets and excavating machines at the site. The Bethlehem company bid the lowest on a fixed prices basis for the four cargo vessels the Maritime Commission is now proposing to construct.

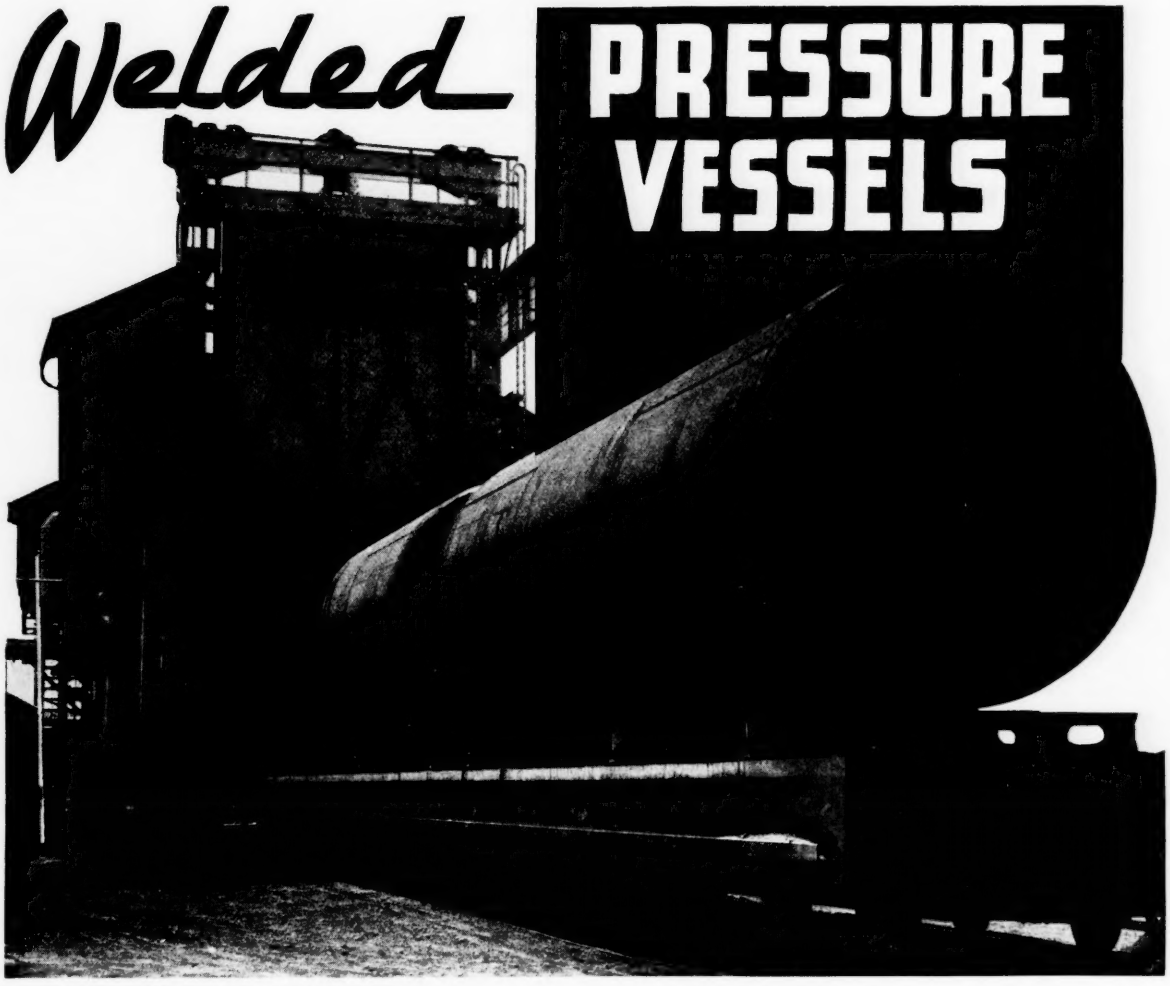
The award was made by the City of Natchez, Miss., for a $272,456 building to house the new tire manufacturing enterprise of the Armstrong Tire and Rubber Co. Machinery to be installed for this project will cost in the neighborhood of $1,000,000. The minimum production capacity is understood to be 2,500 tires daily. The White Dairy Co., at Birmingham, Ala., proceeded with construction on a $100,000 pasteurizing plant. Expansion of the Celanese Corporation's plant at Amcelle, near Cumberland, Md., was seen in the issue of $20,000,000 debentures on which approval of the board of directors has been asked.

November was set as the completion

(*Continued on page 34*)

Statistical Comparison of Southern Construction

	Contracts Awarded		Proposed		Contracts Awarded First Five Months, 1938
GENERAL BUILDING	May, 1938	May, 1937	May, 1938	May, 1937	
Apartments and Hotels	$3,866,000	$3,442,000	$2,894,000	$4,139,000	$16,787,000
Association and Fraternal	266,000	595,000	150,000	680,000	1,010,000
Bank and Office	1,779,000	611,000	868,000	865,000	6,739,000
Churches	473,000	609,000	1,755,000	997,000	2,789,000
Dwellings	7,174,000	9,362,000	32,731,000	4,818,000	33,854,000
Stores	3,007,000	3,335,000	2,744,000	4,275,000	16,422,000
	$16,565,000	$17,954,000	$41,142,000	$15,774,000	$77,601,000
PUBLIC BUILDINGS					
City, County, Government and State	$3,750,000	$21,372,000	$34,998,000	$25,415,000	$32,999,000
Schools	4,082,000	2,789,000	22,327,000	12,484,000	24,382,000
	$7,832,000	$24,161,000	$57,325,000	$37,899,000	$57,381,000
ROADS, STREETS and BRIDGES	$10,592,000	$18,507,000	$43,069,000	$40,949,000	$68,470,000
INDUSTRIAL and ENGINEERING					
Drainage	$1,559,000	$1,831,000	$57,694,000	$7,163,000	$9,747,000
Filling Stations and Garages	567,000	673,000	656,000	515,000	2,292,000
Industrial Plants	6,562,000	15,748,000	65,116,000	30,229,000	49,394,000
Sewers and Waterworks	1,156,000	2,943,000	15,402,000	9,061,000	10,192,000
	$9,844,000	$21,195,000	$138,868,000	$46,968,000	$71,625,000
Total	$44,833,000	$81,817,000	$280,404,000	$141,590,000	$275,077,000



for the Storage of Liquids or Gases

Pressure vessels of welded construction provide economical facilities for handling and storing liquids or gases under pressure. They are also used to advantage in many manufacturing processes.

We are equipped to design and fabricate pressure vessels at our Birmingham plant to meet your requirements or to A.S.M.E. specifications. Structures built in accordance with Paragraph U-68 of the Code for Unfired Pressure Vessels are radiographed and stress-relieved in the furnace shown in the above illustration. Vessels up to 14 ft. in diameter by 80 ft. long are stress-relieved in one heat. Those longer than 80 ft. are allowed to extend first out one end of the furnace and then the other until the entire length has been stress-relieved.

The two refinery tanks in the above view are 10 ft. in diameter by 29 ft. 8 in. long and designed for 100 lbs. per sq. in. pressure. Other vessels recently shipped from Birmingham to Southern plants include pulp digesters, oil refinery towers, creosoting cylinders, propane tanks, butane tanks, chemical plant stills, etc.

When contemplating the installation of pressure or field erected storage tanks write our nearest office for information. We will be glad to supply estimating figures or quotations for your consideration without obligation to you. Built up structures are shipped from our Birmingham plant and field-erected installations built complete with our own experienced erection forces.

CHICAGO BRIDGE & IRON COMPANY

Birmingham .....1530 North Fiftieth Street
Dallas .....1408 Liberty Bank Bldg.
Houston .....2919 Main Street
Tulsa .....1611 Hunt Bldg.
New York .....3313-165 Broadway Bldg.
Cleveland .....2216 Rockefeller Bldg.
Chicago .....2106 Old Colony Bldg.
San Francisco .....1040 Rialto Bldg.
Philadelphia .....1619-1700 Walnut Street Bldg.
Detroit .....1510 Lafayette Bldg.
Boston .....1510 Consolidated Gas Bldg.
Havana .....Edificio Abreu 402

B-582

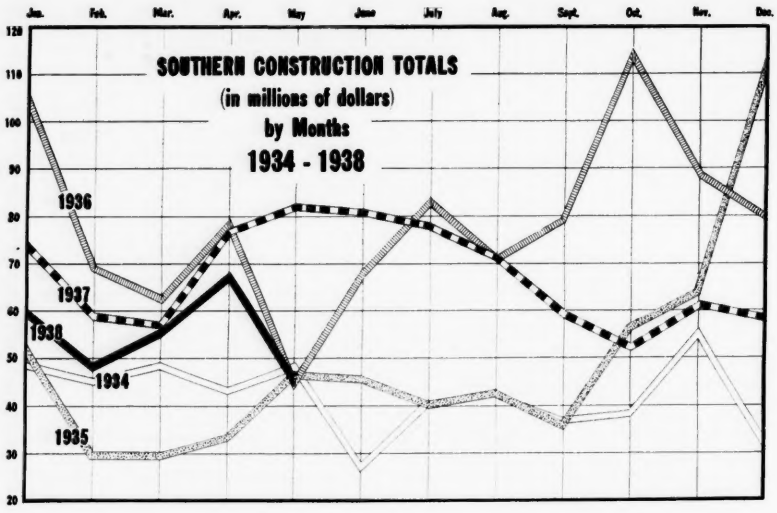
Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

May Contracts $44,833,000

(*Continued from page 32*)

date for a $100,000 bottling plant covered under a contract let by the Salisbury Coca Cola Bottling Co., of Salisbury, N. C. Preparations are being made for building a large plant at Houston, Tex., for the Continental Supply Co., a subsidiary of the Youngstown Sheet and Tube Co. Ten acres of land have been purchased and local reports estimate value of the plant at $1,000,000. The Evangeline Gasoline Co., Evangeline, La., started work on a $1,000,000 gasoline cracking plant to have a daily capacity of 30,000 gallons. A 16-inch pipeline is to be laid from the oil field to the plant site. Standard Oil Co., New York, received bids for a pier proposed for its Baltimore refinery. A local contract was let for steel to be used in the first unit of the $200,000 oil tool manufacturing plant being built at Houston, Tex., by the Bryon-Jackson Co., of Los Angeles.

The $44,833,000 total of contracts awarded in May includes $16,565,000 for general building, $7,832,000 for public building, $10,592,000 for highway and bridge work, and $9,844,000 for industrial and engineering projects. Although the month's total is below the April figure,



it follows the downward course of construction for the months of May in 1934, 1935 and 1936.

Especially encouraging was the fact that general building, which embraces most of the private work, other than industrial construction, fell but nine per cent. A series of modestly sized projects was responsible for this strength. The $119,000 addition to the Belmar Hotel at Miami; the $200,000 Kress store at Alexandria, La.; forty dwellings to be erected at Memphis, Tenn., at a cost of $197,000; a $200,000 apartment hotel at Washington, D. C., for L. E. Breuninger & Sons, Inc., and a $250,000 Ames & Brownley store at Norfolk, Va., were typical of the largest among these.

Representative Projects in South Last Month

Contracts Awarded

Ala., Birmingham—White Dairy Co.
Pasteurizing plant $100,000
Arkansas—U. S. Engineer Office
Levees; Horton & Coleman, Inc., Memphis, Tenn., Contr. 120,000
D. C., Washington—Catholic University
Dormitories; Parkhill Construction Co., Contr. 280,000
Fla., Miami Beach—Belmar Hotel
Addition; Smith Pawley Co., (low bidder) 119,000
Fla., St. Augustine—E. J. Sparks
Theatre; H. S. Baird, Inc., Jacksonville, Contr. 100,000
Ga., Rome—Montgomery Ward & Co., Inc.
Store; Southeastern Construction Co., Charlotte, N. C., Contr. 100,000
La., Evangeline—Evangeline Gasoline Co.
Gasoline Cracking plant 1,000,000
Md., Hyattsville—Washington Suburban Sanitary Commission
Office building; T. Calvin Owens, Bethesda, (low bidder) 113,000
Miss., Natchez—City
Tire factory; B. L. Knost, Pass Christian, Contr. 272,000
Mo., Kansas City—Board of Education
School (DeLano School for Crippled Children); S. Patti Construction Co., Contr. 232,000
N. C., Brevard—Ecusta Paper Corporation
Cigarette paper plant; Fiske-Carter Construction Co., Greenville, S. C., Contr. 2,000,000
N. C., Chapel Hill—University of North Carolina
Public health and medical buildings; V. P. Loftis, Charlotte, Contr. 232,000
N. C., Morganton—North Carolina School for the Deaf
Alterations and additions; V. P. Loftis, Charlotte, Contr. 143,000
N. C., Salisbury—Salisbury Coca-Cola Bottling Co.
Bottling plant; Southeastern Construction Co., Charlotte, Contr. 100,000
Tenn., Memphis—C. W. Hunter
Dwellings; Memphis Construction Co., (low bidder) .. 197,000
Tenn., Murfreesboro—Veterans Administration
Facility; N. P. Severin Co., Chicago, Ill., Contr. 1,202,000
Tex., Amarillo—White & Kirk
Business building; C. S. Lambie & Co., Contr. 129,000
Tex., Houston—Humble Oil & Refining Co.
Office building; American Construction Co., Contr. 450,000
Va., Jarratt—Johns-Manville Products Corp.
Insulating board plant; Consolidated Engineering Co., Baltimore, Md., Contr. 1,000,000
Va., Norfolk—Ames & Brownley
Store; C. J. Lindemann, Bldr. 250,000
W. Va., Pursglove—Pursglove Gas Coal Corp.
Tipple and coal cleaning plant; United Engineers and Constructors, Philadelphia, Pa., Fairmont Machinery Co., Fairmont, Contrs. 100,000

Proposed Construction

Ala., Birmingham—Brown-Service Funeral Co.
Building; D. O. Whilldin, Archt. $120,000
Ala., Birmingham—Tennessee Coal, Iron & Railroad Co.
Install mine equipment (Docena Mine) 200,000
Ark., Little Rock—J. E. Josey, Houston
Gas pipe line 2,000,000
D. C., Washington—United States Engineers
Pier, bulkhead, building, etc. (Yacht Basins) 342,000
Fla., Gainesville—Alachua County Board of Education
School construction program; Sanford W. Goin, Archt. 318,000
Fla., Miami Beach—Dr. R. E. Earp
Estate; Treaner & Fatio, Archts. 150,000
Ga., Columbus—J. E. Page and Associates
Apartment House; A. T. Bradbury, Atlanta, Archt. 450,000
Md., Baltimore—University of Maryland Hospital
Addition; Crisp & Edmunds, Archts. 240,000
Md., Seat Pleasant—Hogdon & Wells, Arlington, Va.
Dwellings 300,000
Md., Princess Anne—Princess Anne Academy
Building; Edwin Wilson Booth, Salisbury, Archt. 250,000
Mo., St. Joseph—Treasury Department
Post Office, Courthouse 775,000
Mo., St. Louis—American Refrigerator Transit Co.
Warehouse; L. A. Becker, Archt. 250,000
N. C., Greensboro—Belk's Department Store
Store 225,000
N. C., High Point—North Carolina Theatres, Inc.
Theatre; Erle J. Stillwell, Hendersonville, Archt. 100,000
N. C., Statesville—Treasury Department
Post office and courthouse 285,000
S. C., Rock Hill—Franciscan Sisters
Hospital; Father Michael, Belmont Abbey, N. C., Archt. 250,000
Tenn., Memphis—Memphis Light and Water Commission
Subtransmission and distribution lines 240,000
Tenn., Memphis—City and Shelby County Commissioners
Flood Control; W. B. Fowler, City Engr. 14,000,000
Tenn., Memphis—Methodist Hospital
Addition 300,000
Tex., Austin—Lower Colorado River Authority
Austin Dam 2,300,000
Tex., Callallen—City, A. O. McGaugh, Mayor
Filtration plant addition; John Bissett, Corpus Christi, City Engr. 150,000
Tex., College Station—A. & M. College
Dormitories and mess hall; Alfred C. Finn, Houston, Archt., Robert J. Cummins, Houston, Engr. 2,000,000
Tex., Houston—Continental Supply Co.
Plant 1,000,000
Tex., Lufkin—Lufkin Independent School District
School; Shirley Simmons, Tyler, Archt. 200,000
Md., Hyattsville—Prince George's Hotel Corp.
Hotel 125,000
Md., Baltimore—Hospital for the Women of Maryland
Alterations and additions; Crisp & Edmunds, Archts. ... 330,000
Va., Richmond—Dixie Container Corp.
Paper Products plant 250,000
Va., Richmond—State Library Commission
Library 1,000,000
W. Va., Fairmont—Charles Town Jockey Club
Racing track 500,000
W. Va., Huntington—Appalachian Electric Power Co.
Office building and warehouse 500,000

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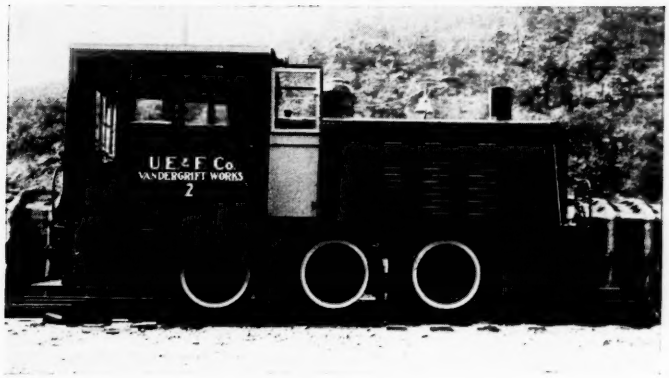
PLYMOUTH LOCOMOTIVE WORKS

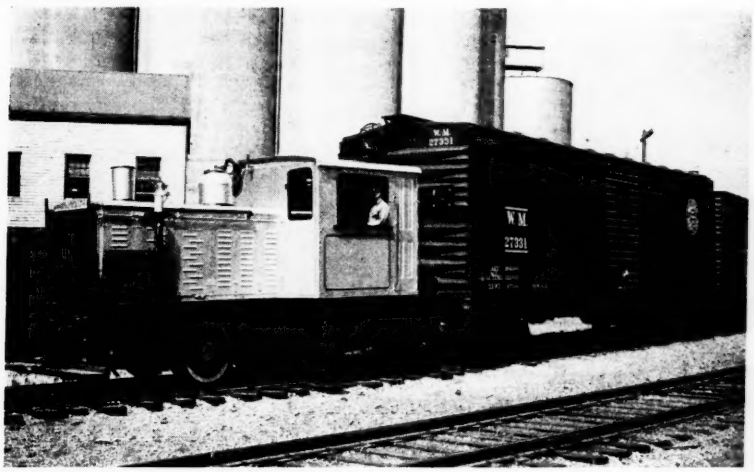
Division of The Fate-Root-Heath Co.

PLYMOUTH, OHIO, U. S. A.



ABOVE: UNITED ENGINEERING AND FOUNDRY CO., Vandergrift, Pa., replaced a 45-ton steamswitcher with a 35-ton, 250 h. p. Plymouth Direct Drive Gasoline Locomotive. Now switching is done better and cheaper.

BELOW: Seven years' service--103,609 stops and starts in ninety-day period every year -- balance of year ordinary switching -- no failure in service -- one clutch renewal! NATIONAL BISCUIT CO., Toledo, O.



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LOCOMOTIVES

Iron, Steel and Metal Market

As the month of May closed, the operating rate of steel companies was at 26.1 percent of capacity, compared with 77.4 percent one year ago. The hope of improvement rests largely upon an increase of automobile purchases, an upturn in building and a worked-out plan of aid to the railroads which will enable them to buy much needed equipment.

An article published elsewhere in this issue shows the extent and variety of railroad purchases in one state. It serves as an indication of what may be expected the country over when the carriers are able to enter the market in earnest.

Memorial Day, a national holiday, had its effect in lessening the rate of production in the last week of May but the tendency has been downward for sometime with some producing centers, however, showing a better average than others. Birmingham has been the bright spot in the steel picture but even there there was a slight drop. Prices for the third quarter have been reaffirmed both by steel and iron producers but so far this fact has not developed any noticeable increase in demand.

The scrap market continued to be weak with very little activity, and dealers are reported to be looking for still lower prices. With steel operations higher than they are now scrap sold in 1938 at $8.00 a ton.

Among the recent orders received were 1,750 tons of steel for pipe for the Cleveland water works by the Bethlehem Steel Corporation. The same company booked 1,000 tons of reinforcing steel for the bridge over the Savannah River in Georgia, besides 800 tons of reinforcing steel for the Petroleum Industries Building at the World's Fair. The New York City Department of Purchases has asked for bids on 2,000 tons of 6 to 12 inch cast iron pipe with 200 tons of fittings. On June 15th the same Department will take proposals on 8,970 tons of 6 to 20 inch cement lined cast iron pipe.

The demand for copper continued fairly active. Export copper sold at 8.62 cents a pound with a trend toward firmness although this was not reflected in any increased demand on the part of the home market which remained quiet at around nine cents.

The American Iron and Steel Institute in the June issue of its publication "Steel Facts," talks of employment in the steel industry and points out that instead of declining as a result of the large scale adoption of continuous rolling mills and other technological advances in new equipment, employment actually increased. A survey covering the past 11 years among companies producing sheet steel in which very definite advances in processes have been made shows that employment increased 28 percent. It was a greater gain than that for the steel industry as a whole. At the same time the gain in the number employed in steel companies which do not have continuous mills was not far behind, the gain there being 25 percent in 1937 over 1926. The point emphasized is instead of technological improvements decreasing employment, it actually increased it—the evidence of theorists to the contrary notwithstanding.

On the other hand this same technological improvement served very definitely to lighten the physical toil involved in steel production and to increase labor's productivity as well as earnings. During this period of 11 years, the production of sheet steel increased from 4,200,000 tons to 7,800,000 gross tons, or 85 percent. The result has been that sheet steel accounted last year for 21 percent of the total finished steel output. Incidentally, but of importance, is the fact that labor's share of the steel dollar in 1937 was five times as large as the share paid to stockholders plus the amount added to surplus.

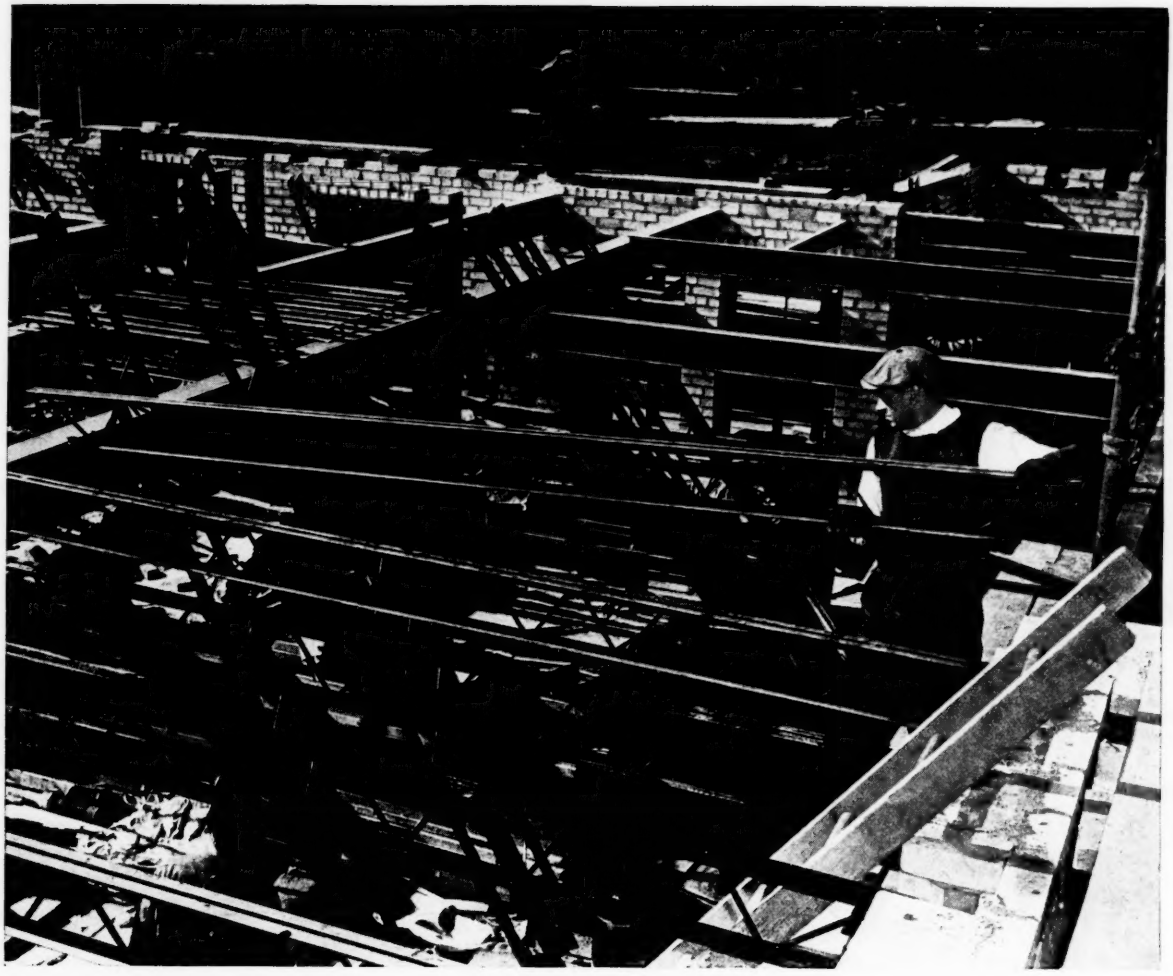
With all the talk of politicians about what is being done and what should be done to save the country, figures like the above should be of vital interest to every thoughtful person because they show beyond any manner of doubt or theory the necessarily important part industry takes in employment and fundamental progre s. Taxes paid by the steel industry in 1937 amounted to $163,000,000 and were 65 percent above the amount paid in 1929.

A report of the American Institute of Steel Construction says that orders for fabricated steel booked during April were the largest of any month this year. They showed an increase for the second consecutive month and were 39.4 percent of the so-called normal which was the annual average 1928-31. Contracts closed were for over 313,000 tons in the first four months of 1938.

It is expected that some unemployment may result in smaller operations in Birmingham but this will be off-set in part by the men employed on repair work on furnaces. Southern railroad companies during the month placed an order with the Pullman Company's plant at Bessemer for 2,000 freight cars to cost $5,000,000. This will afford employment to 700 men. In addition, however, steel for frames, axles and reinforcements will come from the Birmingham mills and a considerable portion of the wheels, all of which will be helpful in keeping up employment.

The American Iron and Steel Institute had its 47th general meeting in the latter part of May. Opinions expressed by steel executives in attendance were to the effect that there was little evidence at present of a forward movement in buying. This, notwithstanding the fact that the steel industry as a whole is better equipped from every standpoint to supply requirements than it ever has been, vast sums having been spent for new equipment and plant improvement. It was pointed out that the present hesitation cannot be indefinitely prolonged in view of the country's mounting needs and the fact that consumption is greater than production and has been for some time.

Gratification was expressed that the labor situation is much more favorable than a year ago in part no doubt, due to the depressed condition of business and the amount of unemployment existing. A major factor in the situation is the same as that which applies to business generally—uncertainty of about what is to come. The Administration and Congress has assumed such dominating control of business and has caused to be enacted so many regulatory and restrictive laws that coupled with mounting taxes, buyers refrain from arranging for necessary requirements.



For better-built light-occupancy structures

BETHLEHEM *Open-Web* STEEL JOISTS

BETHLEHEM Open-Web Steel Joists put an end to the separation of floors from baseboard and trim that so frequently results from shrinkage of joists of the commonly used types. Used in conjunction with a concrete-metal-lath floor slab, Bethlehem Open-Web Joists are the economical basis for a termite-proof floor structure with a fire-resistance rating of better than two hours. This latter feature is especially valuable in homes and apartment buildings of moderate size.

No special problems of design or engineering are created by the use of Bethlehem Open-Web Steel Joists. They are used exactly like corresponding wooden members, with plans detailed accordingly. Their length may be specified when they are ordered, or they may be flame-cut to size on the job before being welded, bolted or clipped into position. In the lengths most generally used they average 60 pounds in weight and may be easily handled and placed by one or two workmen without need for any special hoisting equipment.

While Bethlehem Open-Web Steel Joists slightly increase the original cost of construction, this is more than compensated for by reduction in maintenance and insurance charges. Details on their most efficient use in all types of light-occupancy structures from private homes to moderate-size commercial buildings are available upon request.

BETHLEHEM STEEL COMPANY

BETHLEHEM STEEL

Lumber

News *of the Month*

Southern Pine Trends

The weekly *Trade Barometer* of the Southern Pine Association registered some improvement in May, both as compared to April and to a year ago.

Production in May, although an increase of 5% over April, was down 18% from May a year ago. Shipments during May increased 5% over April and were off just 14% from May a year ago, which compares to a decline of 22% in April from a year ago. Orders booked during May increased 8% over April and were off 14% from May a year ago, compared to a decline of 19% in April from a year ago.

In the 20 weeks ended May 21, production has been equal to shipments and just 1% in excess of orders. Production in this period shows a decline of 17% from the like period in 1937; shipments are down 18%; and orders are off 14%. Southern Pine, according to these figures from some 120 mills in eleven states, is showing marked stability and a strong resistence to current depression tendencies. The prospects for improvement, insofar as the general economic outlook is concerned, are bright.

Stocks on hand at reporting mills are moderately above normal and well assorted. Current price at mill is off about 25% from a year ago and below the 1937 level of cost. The outlook is for higher prices at present levels of production and demand.

Building prospects, despite some slight decline in building during April, are unusually good. The volume of projected construction, reflected in the increasing number of building permits granted in cities, in mortgages selected for appraisal by FHA (26% higher in April than a year ago), and in the large excess of contemplated residential building over new contracts let is of very large proportions. Stocks at retail yards are considerably below normal, according to most reports, and any improvement in business morale and restoration of business confidence will reflect in a much stronger and much improved building materials market.

Comparison of Southern Pine production, shipments and orders in 1938 and 1937

Average Per Unit Per Week

	Production			Shipments			Orders		
	1938	1937	%	1938	1937	%	1938	1937	%
Month	M. Ft.	M. Ft.	Change	M. Ft.	M. Ft.	Change	M. Ft.	M. Ft.	Change
January	257	290	—11	274	335	—18	304	347	—12
February	268	321	—17	275	366	—25	270	318	—15
March	278	323	—14	285	308	— 7	260	284	— 8
April	262	343	—24	245	315	—22	236	292	—19
May (thru 21st)..	276	338	—18	257	299	—14	250	290	—14
Avg. 20 Weeks ...	268	322	—17	268	325	—18	265	307	—14

Lumber Dealers' Annual Meeting

Lumber and building supply dealers from all over the United States held their annual convention in Washington last month when the National Retail Lumber Dealers Association met in conjunction with the National Lumber Manufacturers Association.

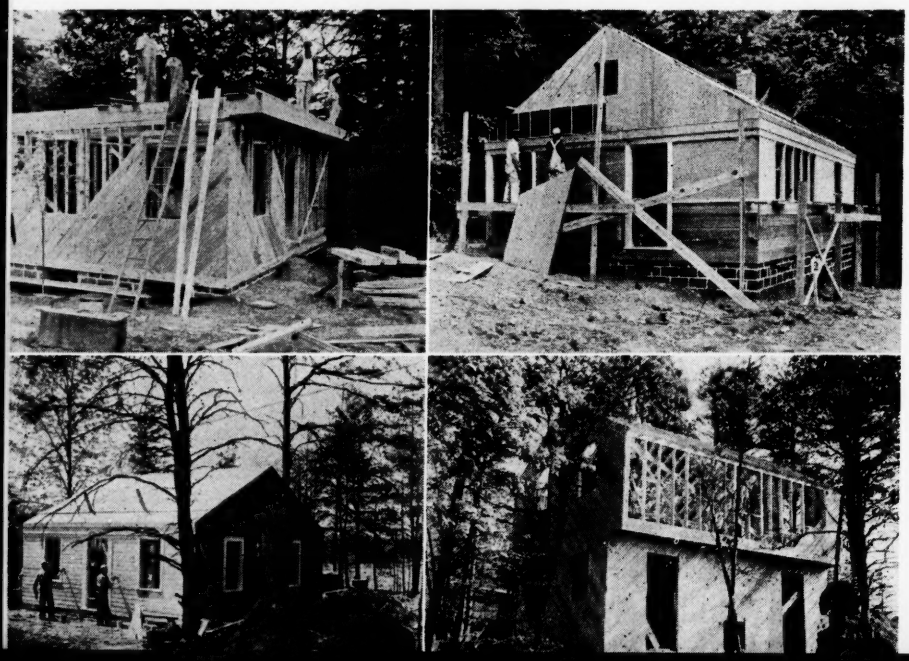
The principal feature of the two days' session was the emphasis placed upon small home construction. In this connection the National Lumber Manufacturers Association had constructed several low cost houses at Glen Echo, Maryland, which were visited by the members. Illustrations of four of these houses are shown on this page.

In the left upper picture is shown the offering in low cost construction for a full sized house with basement, comprising three finished bedrooms, an unfinished bedroom, living room, dining room, kitchen and garage, at an approximate construction cost of $3,700.

The $2,000 minimum accommodation "garden apartment," which is the lowest priced unit in the community series, is pictured in the lower left corner. This view was taken after an actual working period of only eight days. The house has a 23 foot living room with fireplace and wood paneling.

The upper right illustration shows the application of plywood to a two-bedroom or one-bedroom and dining room small home. Convenient arrangement of the rooms with direct access from the kitchen to the rear bedroom makes possible the use of that room as a dining room. The construction cost is between $2,000 and $2,400.

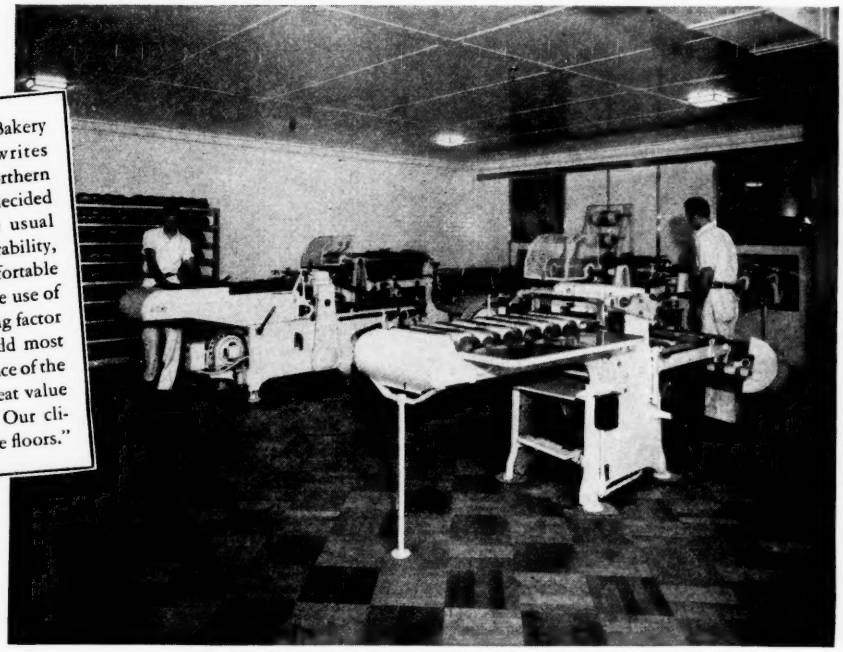
A compact, efficient six-room home providing three-bedroom facilities at a cost range of $2,800 to $3,400 is the house shown in the lower right corner. The overhanging second floor reduces the cost of foundation masonry, excavation and similar basement items without reducing the area necessary for living quarters.



"...OUR CLIENTS ARE VERY PROUD OF *Their Maple Floors*..."

...*says* The W. E. LONG CO., *Bakery Engineers, Chicago*

"In the rehabilitation of the Smith Bakery at Mobile, Alabama in 1937," writes The W. E. Long Co., "33/32" Northern Hard Maple block flooring was decided upon for flooring material. The usual consideration was given to the durability, ease of cleaning, long life and comfortable working conditions incident to the use of Maple Floors, but the final deciding factor was that Maple Floors would add most materially to the finished appearance of the entire plant and would be of great value from an advertising standpoint. Our clients are very proud of their Maple floors."



Northern Hard Maple block floor in the Smith Bakery at Mobile, Alabama

YES, factories *can* take pride in the bright and shining face Hard Maple shows plant visitors. For this smooth, light-reflecting floor captures sunlight — cheerfully suggests the constant sanitation that should be identified with every factory. Non-porous, it offers no lodging places for germ-laden dust. Employees, too, appreciate working on Maple—it's warm, dry, and easy underfoot — so that management profits by increasing efficiency and reducing fatigue.

These are the intangible profits of Hard Maple Floors, but your cost figures will show you tangible ones. For tough-fibred, tight-grained Hard Maple shows remarkable resistance to abrasion and indentation — even the heavy pounding of trucks does not develop slivers, splinters, or ridges through the years; yet, being wood, it creates no injurious dust—simplifies alterations—machinery is firmly anchored. Maintenance is simple and inexpensive. Properly finished, brushing alone keeps Hard Maple clean. On every count, it offers remarkable economy.

Before building or remodeling, investigate this superior flooring. And when you buy be sure it's **MFMA*** Northern Hard Maple—available in strips or blocks.

MAPLE FLOORING MANUFACTURERS ASSOCIATION

1797 McCormick Building, Chicago, Illinois

See our catalog data in Sweet's, Sec. 11/76.
Write for folder describing good service finishes for old or new Hard Maple floors.

To be sure of Association guaranteed grading, specify and look for the* **MFMA *trademark (indented and stamped). The following manufacturers are licensed to use it:*

Beck, August C. Co., Milwaukee, Wis.
Brown Dimension Co., Manistique, Mich.
Bruce, E. L. Co., Memphis, Tenn. (Mill at Reed City, Mich.)
Connor Lumber & Land Co., Laona, Wis. (Sales Office, Marshfield, Wis.)
Farrin Lumber Co., M. B., Cincinnati, O.
Holt Hardwood Co., Oconto, Wis.
Kerry & Hanson Flooring Co., Grayling, Mich.
Kneeland-Bigelow Co., Bay City, Mich.
Kneeland-McLurg Flooring Co., Phillips, Wis.
North Branch Flooring Co., Chicago, Ill.
Oval Wood Dish Corp., Tupper Lake, N. Y.
Robbins Flooring Co., Rhinelander, Wis.
Stephenson Company, I., Wells, Mich.
Wells, J.W. Lumber Co., Menominee, Mich.
Wisconsin Land & Lbr. Co., Hermansville, Mich.
Yawkey-Bissell Lumber Co., White Lake, Wis.

Floor with MFMA Maple

(NORTHERN HARD)

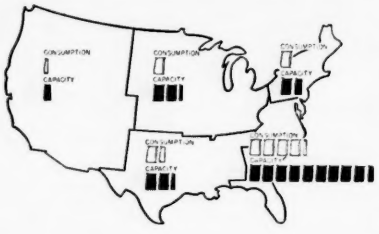
Our Phosphate Problem

(Continued from page 20)

year has the consumption been over approximately 75,000 tons. The industry's ability to supply any reasonable demand was demonstrated in March of this year, when, for the first time, the U. S. Department of Agriculture advertised for bids on concentrated superphosphate for use in the AAA program and over 50,000 tons were offered by private producers. Most of the offers were at prices comparable to or even below the prices heretofore charged AAA by the TVA for the same material. These offers were made despite the fact that the specifications of the bids required that the manufacturer be prepared to deliver the entire amount offered but did not require the Government to order any of it. In other words, a bid, even if accepted, was only an option of the Government to buy when and if needed.

There are 191 plants manufacturing normal superphosphate with a capacity of 8,800,000 tons, which is more than double the consumption. There are 913 plants that manufacture mixed fertilizer, with a capacity of 16,000,000 tons a year, whereas even including the TVA production and distribution of concentrated superphosphate the 1937 consumption, the largest on record, was only 8,204,000 tons.

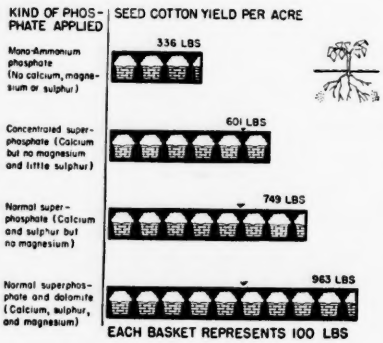
***Consumption vs. Capacity*, 1937**



Each white bag* = 1,000,000 *tons consumed
Each black bag* = 1,000,000 *tons capacity

The concentrated superphosphate produced by the Tennessee Valley Authority at Muscle Shoals does not differ chemically from that produced by private manufacture. It is true that the liquid phosphoric acid used in the final chemical reaction is produced by means of an electric furnace, whereas other manufacturers use a blast furnace or chemical acidulation to produce the liquid phosphoric acid, but chemically it is the same. Concentrated superphosphate, be it of private or Government manufacture, is a good source of available phosphoric acid provided it is supplemented by other elements. Even the Tennessee Valley Authority recommend that its concentrated superphosphate be mixed with twice its weight of limestone before application to the soil, and in the Authority's annual report for the year ended June 30, 1936, it states that its concentrated superphosphate is a satisfactory source of available phosphoric acid provided it is supplemented with gypsum (calcium sulphate).

Effect of calcium, magnesium and sulphur on yield of cotton Georgia Experiment Station* 1930-37


KIND OF PHOSPHATE APPLIED
SEED COTTON YIELD PER ACRE
Mono-Ammonium phosphate (No calcium, magnesium or sulphur)
336 LBS
Concentrated superphosphate (Calcium but no magnesium and little sulphur)
601 LBS
Normal superphosphate (Calcium and sulphur but no magnesium)
749 LBS
Normal superphosphate and dolomite (Calcium, sulphur, and magnesium)
963 LBS
EACH BASKET REPRESENTS 100 LBS

**Total application equivalent to 600 pounds of 6-8-4 fertilizer per acre*

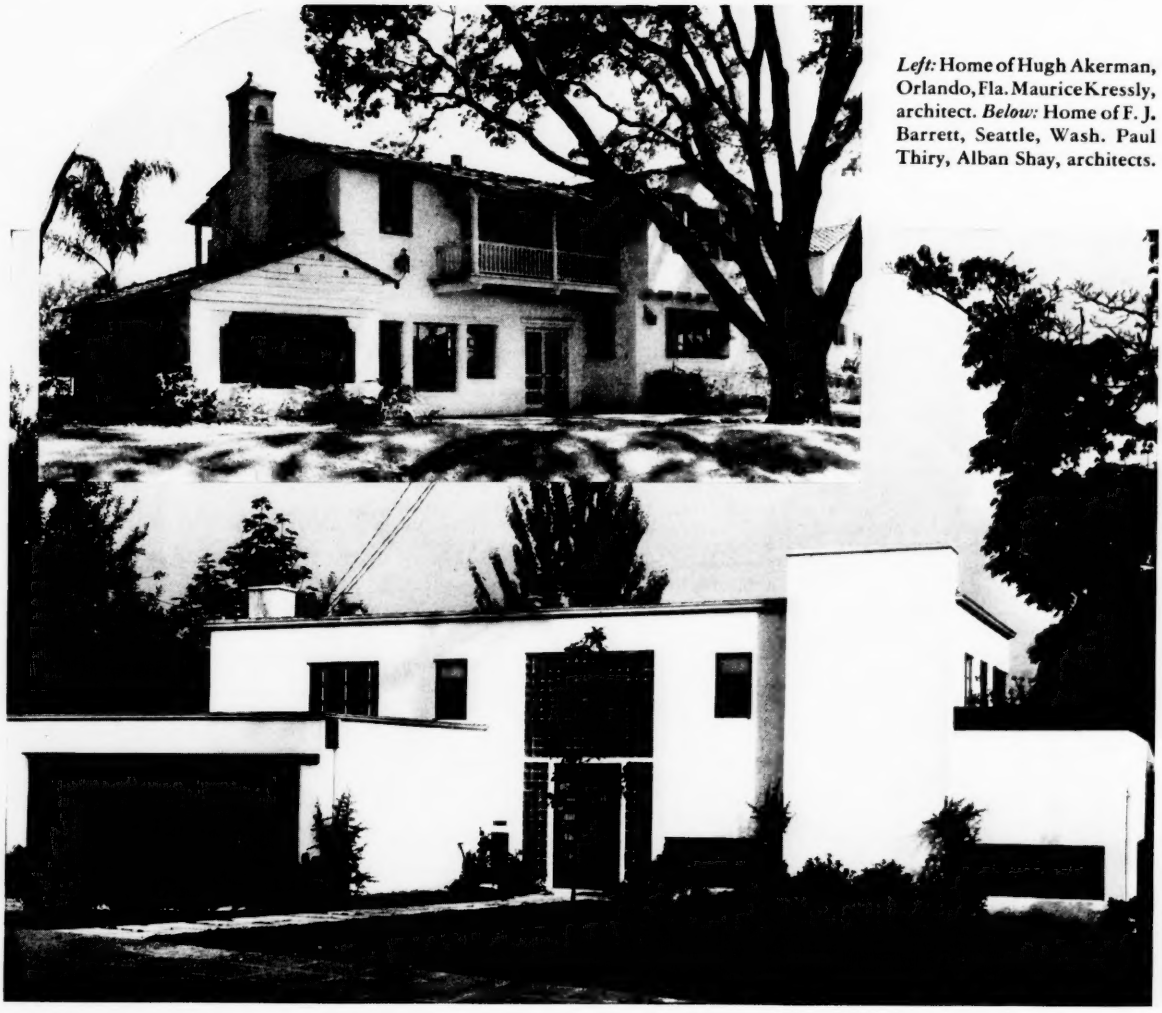
The amount of calcium and sulphur in concentrated superphosphate is much less in proportion than in normal superphosphate which contains nearly 50 per cent by weight of gypsum. Since all crops require both calcium and sulphur, and since some soils are deficient in one or both of them, it goes without saying that normal superphosphate is on the whole the better agronomic material. Since it costs more to make phosphoric acid available in the form of concentrated superphosphate than in the form of normal superphosphate, the economic phase of the problem becomes one of transportation. Since there are 191 plants for producing normal superphosphate scattered all through the fertilizer-consuming areas of the country, with an average freight of about $2.25 to points of consumption, and only 8 concentrated superphosphate plants including TVA, four of them in the Tennessee Valley, two in Florida, one in South Carolina, and one in Montana, with an average freight to consuming points several times $2.25, it can easily be seen that at many points normal superphosphate is cheaper per pound of available phosphoric acid than is concentrated superphosphate. To the cost of concentrated superphosphate must be added the cost of supplementing it with the gypsum necessary on many soils to make its use effective. No such extra expense is necessary when normal superphosphate is used, as this material contains inherently a sufficient ratio of calcium and sulphur. Both normal and concentrated superphosphate are valuable materials, but there is no occasion for Government manufacture of either of them.

Calcium metaphosphate is a new fertilizer material developed by the technical staff of the Tennessee Valley Authority, and they should be credited with this development as well as with improvement in the electric furnace methods for the production of concentrated superphosphate. The agronomic value of calcium metaphosphate has not yet been fully determined. Laboratory tests, pot tests, and some field tests indicate it is a satisfactory source of available phosphoric acid when applied direct to acid soils. Its value on alkaline soils such as we have west of the Mississippi and its suitability as an ingredient of mixed fertilizers is doubtful.

Administrative problems in connection with the TVA investigation and political representations from the western States have brought the phosphate picture forcibly before the President. On May 20, 1938, he sent a message on phosphates to the Congress. This message should allay any fears as to the sufficiency of our phosphate reserves, as the President reported the known deposits to be 7.2 billion tons and the 1936 production to be 3,351,857 tons—enough for over 2,000 years at that rate. The President pointed out to the Congress that the real problem is reflected in the continuing loss of productive capacity of our soils, that this loss should be stopped and the fertility of our soils rebuilt. He recommended that the Congress appoint a joint committee to give study to the entire subject of phosphate resources and their utilization.

There is no phosphate problem in this country except that of educating the farmer as to the necessity for its continued and increased use to restore and maintain the productivity of our soils.

Private industry has in the past furnished the farmers of this country at reasonable prices all the phosphate and other fertilizers that they desired and is equipped and stands ready to supply now and in the future the farmers' requirements on the same basis. There is no justification whatever for Government production of phosphates or other fertilizers in competition with private industry.



Left: Home of Hugh Akerman, Orlando, Fla. Maurice Kressly, architect. *Below:* Home of F. J. Barrett, Seattle, Wash. Paul Thiry, Alban Shay, architects.

Why Concrete Home Construction *"looks good"* to the banker

One reason: it looks good to the owner and his neighbors

Because beauty is an important factor in the value and salability of a home, you'll be interested in concrete's swift new recognition as a material for making homes *appealing* as well as firesafe and structurally substantial.

In 1936 and 1937 leading architects created thousands of outstandingly beautiful homes, representing a wide range of architectural styles, sizes, colors and surface textures.

Recently, the architectural editor of a national home magazine wrote: *"It is apparent that concrete construction is making faster strides in the home building market than any other material, and I think this development is logical, as the firesafe element alone is appealing to more and more people both from a safety and an economy standpoint."*

The Answer to Long-Term Financing

Building with concrete serves more than an aesthetic purpose—*it's good business!* Concrete provides long-term *structural value* as security for the mortgage. Concrete homes are moderate in first cost, and economical to own because they save on upkeep, and assure higher resale value.

Let us send you a copy of the widely-read booklet, *"Why People Like Concrete Homes."*

PORTLAND CEMENT ASSOCIATION

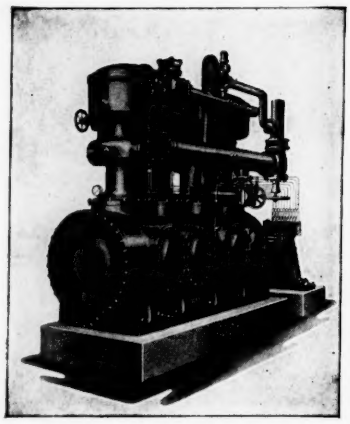
Dept. A6-21, 33 West Grand Avenue, Chicago, Ill.

A National Organization to Improve and Extend the Uses of Concrete

New Ways of Doing Things

Large Capacity Frick Refrigerating Units

Foreseeing a trend toward larger refrigerating machines because of an ever widening use of refrigeration on the part of industry and business, as well as of the public, the Frick Company of Waynesboro, Pa., has developed a line of large 4-cylinder enclosed type compressors which provide capacities up to 218 tons of refrigeration in a single machine, under standard A. S. R. E. conditions. The units are arranged to be driven direct by a synchronous motor, oil, gas, or steam engine, or through flat or V-belts, and require up to 332 brake horsepower for one compressor. Capacity controls for each of the four cylinders are standard equipment.



Large 4-Cylinder Frick Compressor

New Type Core Drilling Bit

Faster drilling speed and greater footage per bit are claimed for a new type of core drilling bit introduced by Sullivan Machinery Company, Michigan City, Ind. Known as the Koebelite Korbit, the new bit, it is declared, effects savings of 15 to 20 per cent compared with other types of bortz set core drills.

Produces 6 by 10-Foot Veneers

The new mill of the Meyercord Lumber Company at Mobile, Ala., has gone into production of veneers that range in sizes up to 6 feet by 10 feet. This increased size, it is declared, has been made practicable for commercial purposes because of improved methods of drying the sheets at only 130 degrees Fahrenheit, in a specially designed drying kiln. The process eliminates acids and salts that cause case hardening, hence checks and split pieces have been practically eliminated and waviness, inherent in ordinary veneers, have been materially reduced. At present veneers are being produced largely from Southern hardwoods, but it is believed that the location of this mill will enable the Meyercord company to draw additional logs from Central and South America.

Propeller Type Fans

Designed for use in duct systems and for similar service where resistances to air flow are encountered, an entirely new line of propeller type fans has been introduced by Propellair, Inc., Springfield, Ohio. The line which has the non-overloading feature, is available in various sizes and horsepower ratings to give desired results at various stages of pressures encountered over a wide range of applications.

Single Cylinder Engines

Two new models of single cylinder engines, one water-cooled and the other air-cooled, developing from four to five horsepower, have been announced by Novo Engine Company of Lansing, Mich. Identical in size with regard to bore and stroke, mounting dimensions, flywheel housing, and shaft dimensions, ninety per cent of the parts are interchangeable. The engines have been on test for two years and are now being used on Novo equipment requiring this horsepower and are also being offered to users of industrial power.

Non-Clogging Centrifugal Pumps

Gardner-Denver Company, Quincy, Ill., announces Types "J" and "K" Non-Clogging Centrifugal Pumps, designed for handling industrial wastes, process fluids, food products and unscreened sewage. Built for both horizontal and vertical dry pit installations, these pumps are applicable to all industrial fields and manufacturing processes requiring the handling of liquids in which quantities of solids are held in suspension.

Murphy 4-Cylinder Disel Engine

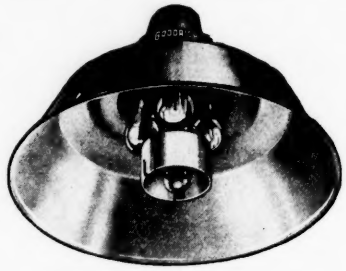
Representing 16 years of development and a vast amount of experimental work, a new 4-cylinder Diesel engine of 100 horsepower on continuous load is now offered by the Murphy Diesel Company, Ltd., of Milwaukee, Wis. The new engine is very similar to the Murphy 6-cylinder engine, and, like that unit, has a single control wheel which acts as a throttle as well as operating a simple gasoline starting mechanism.

Link-Belt Flexible Coupling

Embodying major improvements over the company's type "RC" roller-chain coupling for connecting shafting in line, a new flexible coupling, Type "RCB", is announced by Link-Belt Company, Chicago, Ill. The new coupling consists of two cut-tooth sprocket wheels (or coupling halves) connected by a piece of specially constructed single-width finished steel roller chain, using a recently-patented divided-roller feature which combines the advantage of double roller chain with the more rugged and simple construction of single width chain. Other improvements are a grease-retaining housing: the use of two fittings inside the housing to permit packing with grease without dismantling, and a slightly larger housing to permit a better seal between the two halves.

Mercury-Incandescent Lighting Fixture

For showing up fine detail with extreme clearness and providing at the same time a more pleasant illumination for accurate work, the Goodrich Electric Company, Chicago, Ill., has introduced the Goodrich Combination Dome which mixes the yellow-green light of the mercury vapor lamp with the predominant red rays of the incandescent lamp. Illumination thus accomplished is declared to produce working conditions far more comfortable. The result is brought about with a mercury lamp surrounded by incandescent lamps which mix the yellow-green and red rays to assure a more normal color of light. A diffusing glass cylinder prevents unpleasant glare.



Goodrich "Combination Dome" Light

New Line Dodge ¾-Ton Trucks

Joseph D. Burke, director of truck sales, Dodge Division of Chrysler Corporation, Detroit, Mich., announces a new line of Dodge ¾-ton trucks designed for bakers, launderers, florists, dry cleaners and other operators requiring greater load space than is found in the ½-ton commercial car, but whose loads are smaller than those handled by 1- and 1½-ton trucks. Low price and economy of operation are features of the new line, which is available in two wheelbase lengths and body sizes. The new trucks carry a maximum gross weight rating of 5200 pounds.

(*Continued on page* 44)

You can judge a firm by performance! Our experience in the field of elevated steel water tanks includes a complete line of tanks ranging from 5,000 to 2,000,000 gallon capacity.

We also manufacture tanks of other types for all purposes, as well as towers, standpipes, vats, boilers, etc. Let us know your needs in fabrication! WRITE FOR "TANK TALK" NO. 25-D.

Tank Builders For Over 80 Years!

R. D. COLE MANUFACTURING CO.
ESTABLISHED 1854
NEWNAN — GEORGIA

TANKS

Made to your specifications of steel, stainless steel, stainless clad, monel, nickel, nickel clad, copper, aluminum and alloy metals.

PLATE and SHEET FABRICATORS
From 1/16" to 1" in thickness

Our 25 years of experience in fabricating pressure and non-pressure tanks, smoke stacks, smoke breechings, hoppers, bins, chutes, storage heaters, instantaneous heaters, condensers and kindred equipment is at your command.

RICHMOND ENGINEERING COMPANY Inc.
RICHMOND — VIRGINIA

CREOSOTED TIES, PILING, POLES, POSTS, CROSS ARMS, and LUMBER

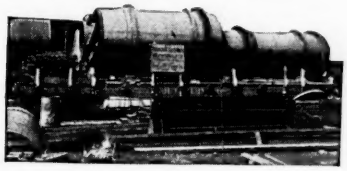
WOLMANIZED LUMBER—
Decay and Termite Proof—Can Be Painted
Docks for Ocean Vessels

American Creosote Works, Inc.
New Orleans, La.

Atlantic Creosoting Co., Inc.
Norfolk, Virginia

Plants at: New Orleans; Winnfield, La.; Louisville, Miss. Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

WELDED
OR RIVETED
CONSTRUCTION

This applies to field as well as shop built equipment.

Write us for information and quotations.

CHATTANOOGA BOILER & TANK CO.
CHATTANOOGA, TENN.

DAVIS CYPRESS WATER TANKS

The "BUY WORD" for 50 years

No wonder that the new paper and pulp industry in the South is coming to Davis, when plants in all other lines have been installing our tanks for 50 years.

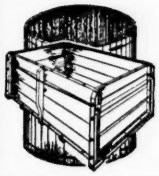
Cypress, sometimes called "the wood eternal," is the material used.
Let us mail you a catalogue.

G. M. DAVIS & SON
P. O. Box 5,
Palatka, Fla.

DAVIS CYPRESS TANKS

WOOD TANKS

Wood Stave Pipe



Our products are designed, built and erected by experienced tank makers.

Tanks any size for all purposes.

Towers any height for tanks.

Write for literature and prices.

THE BALTIMORE COOPERAGE TANK & TOWER CO.
Baltimore, Maryland
The Largest Works of Its Kind in the South

New Ways of Doing Things

(Continued from page 52)

Combination Woodworker

Manufacturing operations have been geared to full speed at the plant of the Hutchinson Manufacturing Company, Bridgeport, Pa., for the production of the Ever-Ready Combination Woodworker, a sturdy combination of eight functional units which occupies a floor space of only 5 feet by 6 feet, and is capable of 40 woodworking operations—saw table, jointer, band saw, lathe, shaper, mortiser and sander, all driven by one motor. Operating from a light circuit, the Ever-Ready is easy to operate and, because of its rigid cast iron frame, attachments are always in exact alignment. Machine units are completely ball bearing and all working parts are properly guarded. The machine is available in either a complete woodworking outfit, or in separate units to which additional units may be added from time to time.

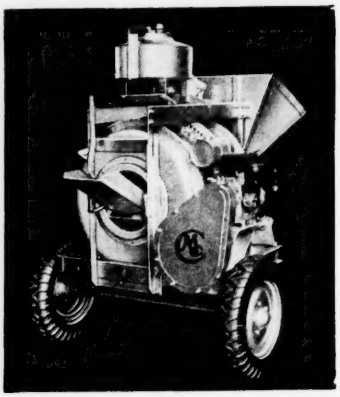
Ever-Ready Combination Woodworker

Insulated Industrial Curtain Wall

Johns-Manville, New York, announces a new type of insulated industrial curtain wall for steel frame factory buildings, which consists of an application of Encased Insulating Board (1 inch of Insulating Board with ⅛-inch veneer of Asbestos Flexboard or Flat Transite) over which is applied a wall of Corrugated Transite. Between the windows, the wall is constructed from Encased Insulating Board to which is cemented a ⅜-inch sheet of Flat Transite to form the exterior surface. Since a special cementing process at the factory provides an excellent bond between the veneer sheets and the core, the units are ready to be erected when they reach the job. Units are held against the steel framework of a building by cadmium plated bolts, and gray caulking compound is applied to the edge of each sheet. The use of Transite and Flexboard surfaces—both of asbestos-cement composition—provides a fireproof walls which are not only incombustible, it is declared, but will withstand high temperature without melting, cracking or buckling.

Small CMC Mixer Announced

With the introduction of the new CMC 3½ Non-Tilt End Discharge Mixer, it is disclosed that a strong market has created such a demand for the models that the factory is unusually active in supplying it. A principal feature of the new model is its large production (up to 40 yards a day) due to the new low



CMC 3½ Non-Tilt End Discharge Mixer

front, high back grated batch hopper. Other important features of the machine are: balloon pneumatic tired wheels, Timken bearings, cantilever springs, disappearing tongue, air-cooled engine, accurate vertical syphon measuring water tank (when desired), and the CMC double-quick mix and remix action. The mixer is manufactured by Construction Machinery Company of Waterloo, Iowa.

Pleasantaire Shipping New Models

New models of the Pleasantaire Portable Room Coolers, made by Pleasantaire Corporation, Washington, D. C., are now being shipped from the corporation's factory in Brooklyn, N. Y., according to Richard F. Roper, president. Declared to be the first window type unit on the market, the Pleasantaire is designed to cool and dehumidify an average room in home or office of 2000 cubic feet or less. It is self-contained and requires no ducts.

Malleable Iron Pipe Line Union

Red-Rex Corporation, Houston, Tex., has developed a new malleable iron high pressure pipe union for use in oil fields or wherever pipe lines are subject to high pressure or vibration. Leak-proof, non-porous and highly resistant to corrosion, each union is tested to 8,000 pounds pressure. Since working pressures rarely exceed 3,000 pounds, the extra strength provides a large margin of safety.

Ten Years of Flying

During ten years of operation over a most difficult period in the development of air travel, Eastern Air Lines has won recognition as an important transportation agency serving the South and East.

Eastern Air Lines was the winner of the first Aviation Safety Award covering the years 1930-1936 and increased its safe operating record during 1937 to include 180,082,419 passenger miles without a passenger fatality.

The place this Company has earned in its field may be more readily appreciated from the following facts taken from "Scheduled Air Lines Operations Statistics for the Year 1937" prepared by the Department of Commerce. Last year, 7,648,314 miles were flown, 143,490 passengers and 683,614 pounds of express were carried on E. A. L.'s four routes between Newark and New Orleans, Newark and Miami, Chicago and Miami, and New Orleans and Houston.

New Airplane Position Finder

A position finder which tells the airline, itinerant and military pilot where he is within two to five miles of his exact location, quickly and without any calculation, has been announced by the Air-Track Manufacturing Corporation, Washington, D. C., builders of Air-Track, the radio safe landing system.

The instrument is the invention of Horace Stark, pilot of Pennsylvania Central Airlines, and is designed to simplify the pilot's job whether he desires his exact position for making a routine report while flying along a known course, or whether he becomes completely lost and must locate himself quickly. Like the Airport Orientator which Stark recently devised, the position finder removes several of the complications now facing the airline pilot. It is also useful to the itinerant pilot in "off-airway" flying.

The instrument is 8 inches in diameter and half an inch thick, and is affixed to the radio direction finder permanently, or can be used as a hand instrument and held on the knee of the pilot. The radio direction finder is tuned to two stations of such geographical location as to give a large angle, and their respective compass bearings are transferred to the position finder by rotating two discs on which parallel lines are printed. A third disc bears a replacable map of the course being flown, and the pilot merely locates the point on the map where the lines which pass through the two stations intersect. That is his exact position.

The whole operation is performed manually in the time it takes to tune two stations, adjust the two discs and locate the intersection of the lines. Each map covers an area of 520 miles in diameter and 16 of them cover all airways of the country with ample overlap.

THE transformers which represent the "industrial power house" when central station service is supplied might well be considered a useful demonstration of mechanical "capital and labor" in working co-operation.

CAPITAL is conserved to the industrial customer for other productive manufacturing operations by elimination of investment in isolated light, heat and power facilities.

The LABOR represented in the ability of this central station supply to go to work in practically unlimited capacities; apply itself to a multitude of jobs at one time; meet, with demonstrated flexibility, the ups and downs of production schedules and do it with reliability, efficiency and economy under all working conditions—all are benefits proved and profitable to industrial and commercial organizations.

The public utility industry lives with these services, and in policy and performance continues to make them realities to the nation's business.

The companies in this system maintain for the benefit of their customers a personnel of experienced power, heating and lighting engineers . . . for co-operation in all matters looking to improving customers' operations through use of the companies' services.

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COMMONWEALTH & SOUTHERN
CORPORATION

ALABAMA • FLORIDA • GEORGIA • ILLINOIS • INDIANA • MICHIGAN • MISSISSIPPI • OHIO • PENNSYLVANIA • SO. CAROLINA • TENNESSEE

"Practically speaking . . "

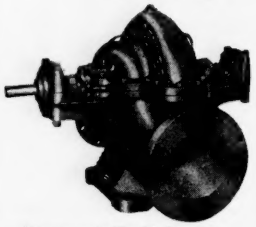
Your typical "cold-blooded" customer may be, and probably is, the best of fellows when you get him out fishing, or at home. But when he's buying pumping machinery—or equipment of any kind—his motto is "practically speaking." And naturally—that purchase means too much to him to let promises or generalities influence his judgment. Whether he's a farmer who wants one small pumping unit, or a plant manager who is ordering a score of the largest, your careful buyer has to know *what* that machinery will do —and *how* and *why* it will do it. That's why he appreciates *facts* when he gets them—he knows the money values that can lie behind those words—"practically speaking."

The Gardner-Denver Company sells its centrifugal pumps on *facts*. It invites you to find out more about the facts that make Gardner-Denver Centrifugals "Tomorrow's Pumps—Today." Gardner-Denver Company, Quincy, Illinois.

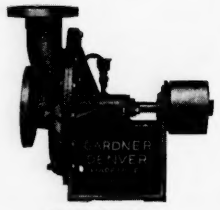
Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Dallas, Texas; Houston, Texas; Washington, D. C.

Since 1859

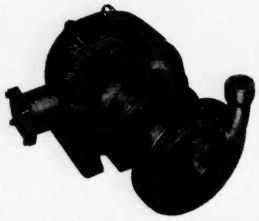
These pumps are sold on Facts



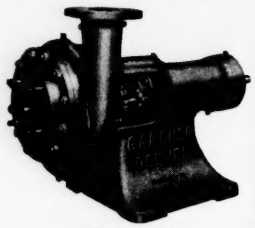
Horizontally Split-Case Centrifugal Pump



Side-Suction Centrifugal Pump



Close-Coupled Centrifugal Pump



Sewage Centrifugal Pump

GARDNER-DENVER

» » » Finance « « «
AND KINDRED SUBJECTS

New Financing This Month

Bond financing in June is likely to be at the highest point for twelve months. The United States Steel debenture offering already placed tops the list with $100,000,000 and next to that, among privately owned enterprises, is the Commonwealth Edison mortgage 3½s, amounting to $33,000,000. The total is likely to run to well over $300,000,000 and their prompt acceptance is taken for granted in view of the great pressure of investment funds for safe outlets.

Excess Reserves

Excess reserves are steadily increasing but demand for commercial loans lags. So far the purpose announced sometime ago of a desterilization program for some of the inactive gold of the treasury has not had a noticeable effect in increasing borrowings. In the meantime, bankers are having a difficult time in improving their profit account. Efforts to get money working by adding to the number of small loans both commercial and personal has met with some success but for reasons of safety indorsements are required in most instances and these are not easy for the borrowers to obtain. The necessity for liquidity to meet what may come is uppermost in the minds of conservative bankers. These problems are in essence the problems of business and they are not easy to solve.

With the return of confidence outside of the counter, confidence will grow inside of the counter. The appeal of New Deal authorities to loosen bankers purse strings does not always meet the tests of Federal examiners. Member banks of the Federal Reserve System contracted total loans and investments in the four-week period ended May 18th by $130,000,000. Easy money has not brought about credit expansion.

Railroad Income

In the first four months of 1938 Class I railroads of the United States had a net railway operating income of $28,791,805 or at the annual rate of return of .44 percent on their property investment.

In the first four months of 1937, their net railway operating income was $195,872,531 or 3.01 percent on their property investment. Property investment is the value of road and equipment as shown by the books of the railways including materials, supplies and cash. The net railway operating income is what is left after the payment of operating expenses, taxes and equipment rentals but before interest and other fixed charges are paid. Sixty-five of these railroads failed to earn expenses and taxes in the first four months of 1938 and of this number 25 are in the Eastern District, 31 in the Western District and 9 in the Southern District.

Real Estate Taxes

The National Association of Real Estate Boards at a meeting in Richmond, Virginia in May decided on a course of action to bring about the modernization of state and local tax structures "to give real estate a more equitable tax treatment." A real estate tax bureau will be established by the Association to assist state groups in planning action through the courts

(*Continued on page* 48)

IDEAL FOR INDUSTRY

"The diverse topography of Virginia lends itself well to almost every type of industry, whether dependent upon altitude, climatic conditions, water supplies or ease of transportation."

—Gov. James H. Price

Whatever industries require in banking will be found in Virginia's largest and Richmond's oldest bank. Inquiries as to industrial opportunities in Virginia will be given prompt and careful attention.

FIRST AND MERCHANTS
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Capital and Surplus $5,700,000 • Member Federal Deposit Insurance Corporation

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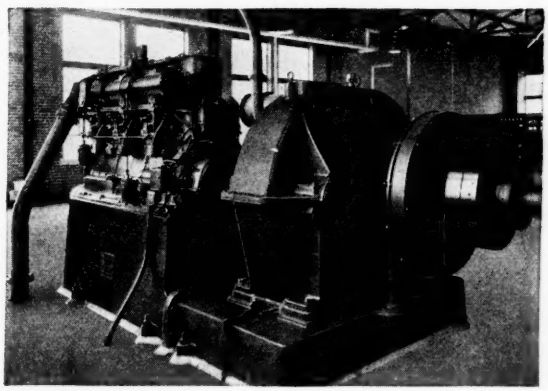
APPLIED TO STERLING GAS AND GASOLINE ENGINES RESULTS IN GREAT SAVINGS.

Sterling High Duty **Internal Combustion Engines**

GAS — GASOLINE — DIESEL ENGINES

Increased engine speeds—900 R.P.M. for continuous service—1200 R.P.M. intermittent duty — result in lower first cost, lesser installation costs and minimum carrying charges. Sterling engines can save you thousands of dollars and give you better service.



425 H.P., 1200 R.P.M. Sterling gasoline engine at Glen Alden Coal Company, Askam Shaft, for emergency mine fan drive,—with quick automatic starting.

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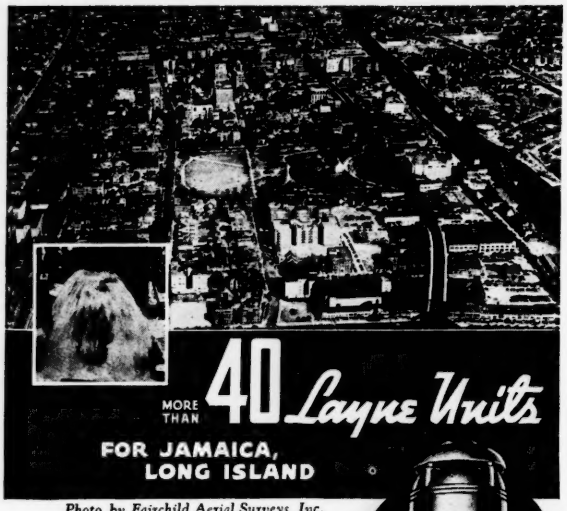
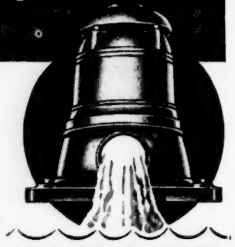


Photo by Fairchild Aerial Surveys, Inc.



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LAYNE-BOWLER NEW ENGLAND COMPANY, BOSTON . . . . . MASSACHUSETTS.
INTERNATIONAL WATER SUPPLY, LTD., LONDON . . . . . ONTARIO, CANADA

With a daily production capacity now in excess of 50,000,000 gallons of water from more than 40 Layne Units, Jamaica, Long Island, has easily, economically, and satisfactorily kept a step ahead of a rapidly growing population. By decentralizing their three original central stations, which quickly would have become inadequate, their Layne Wells and Pumps are now spaced over a forty square mile area. Such an arrangement has assured an ample supply of water at all times, and provided for further expansion as their water demand increases. Since 1920 Layne Wells and Pumps have served the Jamaica Water Supply Company, and the record of low upkeep cost and high efficiency is typical of Layne installations throughout the Nation.

An inadequate water supply is a serious flaw with any city or industry. If you have plans for increasing your water supply, let one of our engineers counsel with you. His advice and help will be very valuable. For literature address, LAYNE & BOWLER, Inc., Dept. X1, Memphis, Tenn.

LAYNE

PUMPS & WELL WATER SYSTEMS

For Municipalities, Industries, Railroads, Mines and Irrigation

"Finance and Kindred Subjects"

Real Estate Taxes

(*Continued on page* 46)

or through legislation. Among other suggestions was that "school costs be drawn from a wider tax base through shift of these costs to the state government which can feasibly levy on many sources of revenue other than real estate." Furthermore, it was recommended "that each state amend its tax assessing laws so that the taxable value of real estate shall be computed on the basis of its average annual production of income." That being interpreted to mean income if on the rental market. In the case of unimproved land, however, "there be substituted for the present ad valorem taxes a system of proportionate taxes for the specific service beneficial to such land, based on a percentage of what the tax would be if adequately improved."

The Abundant Life

The National Industrial Conference Board in pointing out the rise in relief costs, notwithstanding the rise in industrial production, shows that Federal expenditures for relief rose from 360 million dollars in the fiscal year 1932-33 to 2,467 million dollars in the fiscal year 1936-37. In the latter fiscal year although Federal relief expenditures reached the high-point named, industrial production was 71 percent above and unemployment 46 percent below the 1932-33 level.

Faith in the Future

The successful flotation of the $100,000,000 debenture issue by the United States Steel Corporation presents encouragement at the present time. This is true not only because of the splendid credit position of this giant private enterprise but because of the view of its management that this was a time to offer such an issue to the investing public and because of the announced purpose for which the money was desired. It evinces faith in the country and faith in the definite place private enterprise must continue to have in the scheme of things because it is to be spent largely on modernization, extension and replacement of plants and improved facilities.

The prospectus which went with the registration statement said "No forecast is made as to the demand in the future for iron and steel products nor is an estimate made as to the effect upon business and earnings of changes in general economic conditions or of changes which may occur in taxation or tariffs or labor costs," but it points out that capital outlays for needs such as modernization, extension and replacement of facilities aggregated $135,000,000 in 1937 and uncompleted work to be finished this year will amount to $80,000,000 more.

Bank Deposits

Leo T. Crowley, Chairman Federal Deposit Insurance Corporation, addressed the New Jersey Bankers Association in May. In the course of his remarks he said, speaking of the insured banks, 400 banks hold approximately two-thirds of the deposits of the insured banks while the remaining 13,500 insured hold about one-third of the deposits. Two-thirds of the banks have less than 10 million dollars each in deposits. They include 5,100 national banks and 8,400 State banks. Only 244 national banks and 187 State banks have deposits of more than 10 million dollars each.

The insured banks of the country have fixed assets such as banking house, furniture and fixtures and other real estate amounting to only 3 percent of their total assets and 26 percent of their total capital account.

Are You Planning For Future Growth?

Cooperation and Assistance are a Large Part of Our Daily Work

Correspondence invited

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, *President*

BALTIMORE, MARYLAND

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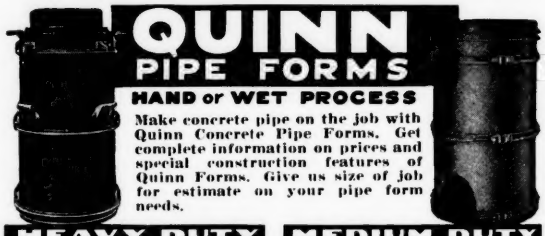

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HEAVY DUTY

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MEDIUM DUTY

Makes same sizes pipe as "Heavy Duty" but built to meet demand for lower cost equipment to produce uniform quality in smaller amounts.

Also manufacturers of concrete pipe machines for making pipe by machine process.

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It *diffuses* light with a minimum of shadows. *It is practically* self-cleaning and can be used on a roof of any material and supply daylight in manufacturing and industrial plants—an important factor in all modern production.

Also used with excellent results on sidewalls, marquises, canopies and wherever daylight is needed.

Our Engineering Service Department can aid you on your skylighting problems. Write or wire.

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Peerless Beauty and Strength

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Drawing Instruments, Slide Rules, Planimeters, Drawing and Tracing Papers, Drafting Room Furniture, Surveying Instruments, Tapes.

PIGMENT Waterproof Drawing Ink
in black and white and a wide range of opaque colors.
Catalogue sent on request. Inquiries solicited.

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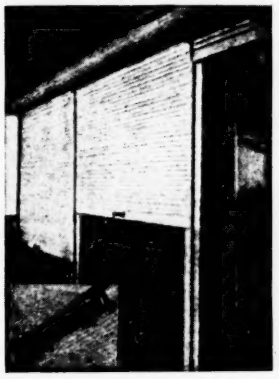

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Reliable Material and Low Prices.

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CRUSHED STONE

Only highest grades of crushed

LIMESTONE AND GRANITE

Meeting all specifications

CAPACITY—8000 tons daily

Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.
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Boxley Building, ROANOKE, VA.

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INDUSTRIAL NEWS

Struthers-Wells Representative

The Struthers-Wells Division of Struthers-Wells-Titusville Corporation, Warren, Pa., engineers and manufacturers of process equipment, etc., announce the appointment of P. H. Nichols as their representative in the Southeastern states. Mr. Nichol's headquarters will be at 1008 Norris Building, Atlanta, Ga.

Riley Stoker Appointments

The Riley Stoker Corporation, Worcester, Mass., announces the re-establishment of its office at Cleveland, Ohio, at 1740 East 12th street, with C. A. McConville as district manager of the new office. Robert B. Hill, formerly connected with the Riley office at Cincinnati, has been appointed district manager of the Riley Buffalo office, and J. B. B. Coburn, Jr., has been appointed sales engineer at the Cincinnati office.

Pomona Pump Changes and Improvements

Culminating a reorganization plan instituted more than two years ago, Pomona Pump Company of Pomona, Cal., announces a number of changes in its executive personnel. According to George A. McKenna, president and general manager since 1925, D. C. McKenna becomes vice president and secretary-treasurer; Jule H. Coffey, vice president in charge of sales; Claude C. Cook, formerly in charge of the St. Louis plant, vice-president in charge of manufacturing; Charles L. Barrett, general sales manager; R. D. Schott, chief engineer; Barclay Mackinnon, comptroller, and I. A. Oliver continues as consulting engineer. The St. Louis plant was established in 1936 and is now producing about 40 per cent of the company's output at a considerable saving to customers in the territory served. Numerous physical changes, additions and improvements have been made at Pomona, and plans are being prepared for a new office building, while the welding division has moved to its own building.

Bethlehem Offers New Line Seamless Tubular Products

Announcing that it has entered the seamless tubing business, Bethlehem Steel Company, Bethlehem, Pa., states that it is now ready to supply seamless casing, tubing and line pipe, thus rounding out its line of products for the oil industry. The new seamless products are made under careful supervision and metallurgical inspection and control, all seamless casing, tubing, and line pipe coming in sizes up to and including 8⅝ inches outside diameter. A mill depot has been opened at 7200 Clinton Drive, Houston, Tex., and adequate stocks will also be maintained at the mill at Beaver Falls, Pa. The company will continue the manufacture of lap-welded surface casing, from 10¾ inches to 13⅜ inches outside diameter, as well as all sizes of lap-welded line pipe up to and including 16 inches outside diameter. Products are available through Bethlehem's regular sales organization, and through the facilities of its subsidiary, Bethlehem Supply Corporation, operating in the Mid-Continent and Gulf Coast fields.

Joins Maryland Dry Dock Company

Frank H. Carter, formerly of Dietrich Bros., Inc., Baltimore, Md., has been appointed purchasing agent of The Maryland Dry Dock Company, Baltimore, according to George H. French, president. Mr. Carter served for 15 years as purchasing agent of Dietrich, and prior to that he established the purchasing systems of the Atlantic Gulf and Pacific Steamship Company. He is a graduate of Cornell University and is vice president of the eighth district, National Association of Purchasing Agents. The Maryland Dry Dock Company is a subsidiary of Koppers Company, Pittsburgh, Pa.

120,000-Gallon Rubber-Lined Tank

What is believed to be the largest tank of its kind is a 120,000-gallon rubber-lined tank recently installed by Consolidated Chemical Industries, Inc., at Fort Worth, Tex. It measures 26 feet in diameter, 25 feet high, and is used for the storage of hydrochloric acid which is used extensively throughout Southwest Texas oil fields in the treatment of wells to increase their flow. The tank is of welded steel plate construction, lined with a 3/16-inch thickness of Triflex rubber by The B. F. Goodrich Company, Akron, Ohio. This lining offers three-ply construction embodying the advantages of both hard and soft rubber, and is equipped with special built-in expansion joints to prevent cracking or buckling. Due to the size of the tank, it was necessary to install the lining in the field, and a major problem in this connection was to develop a practical method for vulcanization of the lining. This was accomplished by covering the outside of the tank with fabric to retard radiation, then filling it with water which was brought to the boiling point by injecting live steam.

McArdle Resigns as Allegheny Steel Sales Head

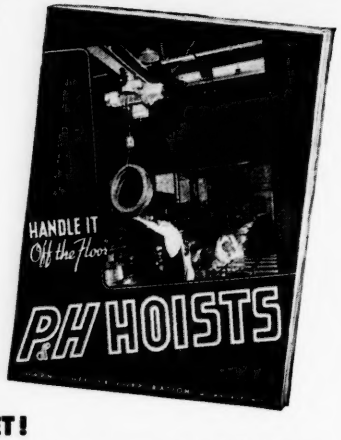
William J. McArdle has announced his resignation as general sales manager of the Allegheny Steel Company at Breckenridge, Pa. After a short vacation, he will resume his business activities in Pittsburgh. Mr. McArdle has been with Allegheny for twenty years, during which period he was closely identified with the development and expansion of electrical and stainless steels, and the popularity of these products now is largely due to his early merchandising and sales pioneering.

(*Continued on page 52*)

FREE FOR YOU TO USE

THEY'LL SAVE YOU MONEY

You'll find in this bulletin, many new money-saving ideas selected from the thousands of P&H Hoist installations. It is not unusual for P&H Hoists to cut handling costs as much as 60%! Isn't it time to check up?



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For Bridges, Buildings and All Industrial Purposes
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Below: Same model Towmotor loading highway truck by using pallets in place of ram.

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TOWMOTOR COMPANY
1237 E. 152nd ST. CLEVELAND, OHIO

INDUSTRIAL NEWS

(*Continued from page 50*)

Steel Companies Plan Merger

At meetings, May 17, of the boards of directors of the Allegheny Steel Company at Pittsburgh, Pa., and the Ludlum Steel Company at Watervliet, N. Y., an agreement of merger of the two companies was approved. This plan will be submitted to the stockholders of the companies for their approval, at special meetings August 10, and if and when the merger becomes effective, the name of the new organization will be Allegheny Ludlum Steel Corporation. Each stockholder of both companies will be entitled to the same number of shares in the new company as he now holds in either Allegheny or Ludlum or both.

Mexican Sugar Mill Starts

Representing a government investment of 14,000,000 pesos, the large government sugar mill at Zacatepec, Mexico, was put in operation late in March and its dedication proved to be a big event in Mexican life. President Cardenas and a number of government officials attended, while H. M. Capron, president of the Equipment Corporation of America, Chicago, Ill., which furnished all construction machinery used in building the mill, was among the guests. Mr. Capron spent a month in Mexico studying business and economic conditions there.

"The Balanced State"

Recounting the industrial advantages offered by North Carolina, a new booklet has been published by the Division of Commerce and Industry of the North Carolina Department of Conservation and Development at Raleigh. The booklet is titled "The Balanced State" and carries an illuminating foreword by Governor Clyde R. Hoey. Sections are devoted to a succinct presentation of facts and figures dealing with North Carolina's agricultural, forest, mineral and water resources, as well as its climate. Copies of the publication may be obtained from J. T. Anderson, Industrial Engineer, Department of Conservation and Development.

TRADE LITERATURE

BOOK REVIEW—
"North Carolina To-Day"—Under the foregoing title, the North Carolina Department of Conservation and Development, R. Bruce Etheridge, Director, Raleigh, has published a booklet presenting a "few glimpses of the state you may want to investigate on your vacation." The publication is attractively illustrated and bound, a copy of which may be procured by applying to the editor at 931 Sir Walter Hotel, Raleigh. It supplements other publications available from the Department of Conservation and Development on Golf; Recreation, Fishing and Hunting; Industry; Agriculture.

CONTROLLED POWER—
Folder—illustrating and describing the Cam-O-Tactor power control for Yale Electric Industrial Trucks, a new unit which has been developed as an entirely different cam-operated contactor controller, for which patent has been applied.
The Yale and Towne Manufacturing Company, Philadelphia, Pa.

METAL TRANSFER CARS—
Pictorial Folder—illustrating and describing new Koppers hot metal transfer cars for steel mills, with diagrams showing exclusive features of construction.
Koppers Company, Bartlett Hayward Division, Baltimore, Md.

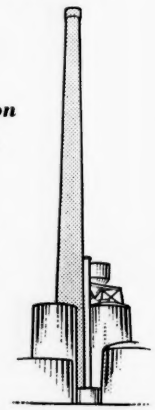
HOISTS AND GATES—
Bulletin No. 137—"Hoists and Gates by Smith," attractively bound and illustrated, presenting essential advantages of Smith Hoist and Gate Equipment, with principal dimensions and capacities, where such data is of value, to aid in the selection of equipment best suited to particular needs.
S. Morgan Smith Company, York, Pa.

RECORDING AND CONTROL EQUIPMENT—
Bulletin No. 140—illustrating and describing Southwark's complete line of stress-chain recorders and extensometers, which are applicable not only to Southwark testing machines but to practically all types.
Baldwin-Southwark Corporation, Southwark Division, Philadelphia, Pa.

RYCROME and NIKROME "M" STEELS—
Bulletin—presenting description and data on the high physical properties of Rycrome and Nycrome "M"—two heat treated alloy steels designed for many heavy duty applications.
Joseph T. Ryerson & Son, Inc., Chicago, Ill.

METAL CONVEYOR BELT—
Catalogue and Folder, Both 1938—illustrating and describing Cyclone Metal Conveyor Belt and telling why so many plants now use them.
Cyclone Fence Company, Subsidiary of United States Steel Corporation, Waukegan, Ill.

Astocrete
and
Reinforced Concrete
CHIMNEY
CONSTRUCTION



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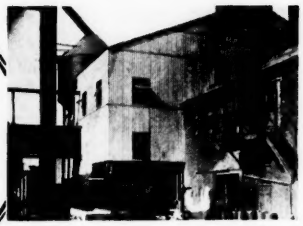

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Ad-men May Say *"No Good"* Fabricators Say *"Swell"*

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Ad-men might not go for it, but men who buy and fabricate high tensile steel sheets will see a lot in it.

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But the thing we want you to do is see for yourself how Armco H. T. 50 works. It will be a revelation, we promise you. Your inquiry will bring prompt response. The American Rolling Mill Company, Executive Offices, 2221 Curtis St., Middletown, Ohio.

ARMCO

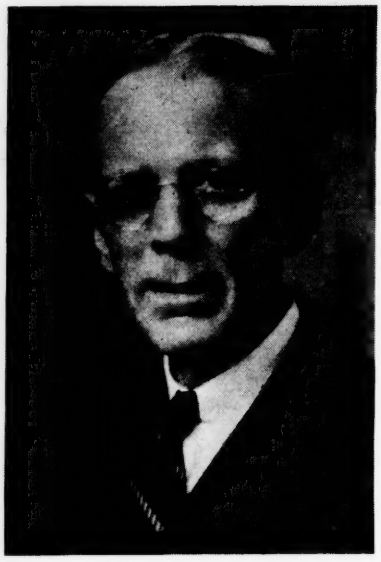
ARMCO H.T.-50

Prominent Industrial Agent Retires

J. M. Mallory, who has been an outstanding figure in railroad industrial work in the South for many years, has announced that he will retire as General Industrial Agent of the Central of Georgia Railway June 1st after 48 years of service.

As a student of industrial conditions and an active influence contributing greatly to the progress of the South, J. M. Mallory has been notably successful. Possessed of unusual personal charm, he has coupled with it a character of sincerity which has not only made him many friends wherever his travels have led him but has caused him to bring to bear in his work, a mind that separated the real from the imaginary, and placed facts above all other considerations in studying the resources and advantages of the territory he has served. While a great deal of his attention has been devoted to the development of the ceramic industry and to non-metallic minerals, his knowledge of the South's other basic materials is broad and varied. Because of his interest in the development and utilization of Southern clay resources, he gave valuable cooperation to the establishment of a Ceramics Department at the Georgia School of Technology, in addition to other lines to which his efforts were directed.

Mr. Mallory is a member of the Board of Regents of the Alabama State Museum of Natural History; vice president of the Society for Georgia Archaeology; he has been for many years a member of the Executive Committee of the Georgia Forestry Association as well as a member of the Georgia Historical Society and the Savannah Historical Society. He has served on both the Senior and Junior sections of the Savannah Chamber of Commerce. He entered railroad service in his native state of Mississippi in 1889 coming to the Central of Georgia from the Illinois Central Railroad in 1894. Industrial development has occupied his time since 1906.



J. M. Mallory

Edgar Brothers Company, large clay producers, said in referring to the cooperation of the Central of Georgia Railway, who serve their properties, "J. M. Mallory is generally recognized as the best informed and most efficient industrial representative in the entire country. Here at least is one railroad whose representative not only located properties, which we ultimately purchased, but has also continuously cooperated to the point where Southern clay was actually marketed through the railroad's cooperation. Within the past year one of our nationally known magazines was being printed on paper manufactured from English imported clay and immediately upon this information reaching our industrial friends the situation was corrected and this magazine now employs a sheet loaded with our Georgia product. This is but one instance."

J. F. Jackson, General Agricultural Agent, will succeed Mr. Mallory as General Industrial Agent of the Central of Georgia and W. P. DerMott for 12 years representative under Mr. Mallory will become Industrial Agent. H. P. Pollard, Receiver of the Central of Georgia, pays high tribute to him as a personal friend, loyal associate and efficient officer. He said: "Long and close relationship with Mr. Mallory has resulted in affection for his personality, esteem for his character, and admiration for his ability. He has been of distinguished service not only to the railroad but to the territory it serves. He takes with him in his retirement the best wishes of all who know him."

False Theories vs. A Sound Plan

We have repeatedly pointed out the mistake made by the New Deal administration insofar as crop production was concerned. We opposed all crop control measures as unsound and in direct violation of the natural economic law.

We have, during these days of stress, said a great deal about the Colquitt County Plan, which for ten years proved it was based on natural economic law. We urged that the Colquitt County Plan be adopted for the Nation and we still assert that we would have been out of the depression long ago had this been done.

The Theorists, however, sold President Roosevelt on the idea that farmers had to have a lot of money. They got the country thinking only in terms of money instead of food, clothing and services. These false theories took more than two million farm laborers off the farms in the south and put them on the relief rolls. These men and women were where they could grow home gardens, chickens, eggs, milk and butter and easily make subsistence during the time unemployment in the big industrial centers was becoming readjusted.

The Atlanta Journal commenting on the Colquitt County Plan recently said: "The plan suffered body blows during the pummeling that all American agriculture sustained from a national and international economy that made farmers the forgotten men, but it suffered less than most of the world, far less than that of the south which held to the one crop."

"Farmers of Colquitt County were staggered but not knocked out. Some lost their lands and are now tenants, but even they are on the way back to ownership. Even in their trials they enjoyed a condition which was prosperity when contrasted with American agriculture as a whole. Their new homes, their new barns, their well cultivated fields now bespeak the SOUNDNESS OF THEIR PLAN."

We are glad *The Atlanta Journal* has seen fit to make the above comment. It proves, at least to our satisfaction, that we were right in urging the Colquitt County Plan be adopted by the United States Department of Agriculture as a model for the nation. It is not too late yet.

"The Colquitt County Plan" would make a fine text for a constructive speech in the United States Congress. It would at least start many of our national law makers thinking along sound constructive lines.

—The Moultrie, South Georgian.

North Carolina Progress

The Department of Conservation and Development of North Carolina discloses an enviable record in a list of new enterprises and additions to existing plants furnished by J. T. Anderson, industrial engineer.

During 1937 there were approximately $14,000,000 spent in North Carolina for industrial construction and expansion and during the first four months of this year over $7,000,000 worth of contracts have been awarded. They comprise industries located in all parts of the state to the number of 23 for new plants and with a similar number of additions. Hosiery mills lead the list in both classifications but a considerable investment is being made in dyeing and finishing and knit goods and fabric mills as well as brick and tile plants, chemicals, food and kindred products and other miscellaneous enterprises.

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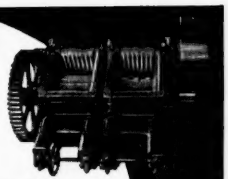

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McLanahan & Stone Corporation

Established 1835

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Railway Expenditures In Arkansas

(*Continued from page* 31)

declined 48 per cent, and installations of new rail declined 80 per cent. Total railway expenditures for materials, supplies and fuel shrank 67 per cent.

In 1929 the railroads of the United States spent 158 million dollars for ties, poles, lumber and other forest products; in 1932 their expenditures for such products totaled only 52 million. In the three-year period 1933-35, the railroads as a whole continued in the red, with the result that their purchases of forest products averaged less than 55 million dollars annually. With somewhat improved net earnings in 1936-1937, they increased their purchases of forest products to an average of 91 million dollars.

In Arkansas railway expenditures for lumber and other products declined nearly 70 per cent from 1929 to 1932, and communities throughout the state felt the adverse effect of their sharply curtailed buying power. With a gradual improvement in net earnings through 1934-1936, and the early part of 1937, railway expenditures in Arkansas for materials, supplies and fuel increased, amounting in 1937 to $6,766,000. Due to the business recession, increased taxes and wages, and other factors, there has been a sharp decline in railway net earnings in the last few months. As a result, railway expenditures for materials, supplies, and fuel in the first three months of 1938 were less than one-half of what they were in the first three months of 1937.

The foregoing variations in railway earnings and purchasing power emphasize the vital importance to Arkansas of a prosperous railway industry.

The railroads outrank every other industrial group in the state, except lumber, as employers of labor. On July 1, 1937, they were providing employment to 15,069 workers in Arkansas. Including members of their families, they comprise a group equal to the combined population of Paragould, Helena, Fayetteville, El Dorado, Newport, Stuttgart, Blytheville, Arkadelphia and Texarkana.

These railway workers are located in hundreds of towns and villages throughout the state—members of train crews, section crews, bridge and building maintenance crews, station agents, car repairers, signal men, machinists, boilermakers, carpenters, general and division officers, traffic solicitors, and so on—thousands of them home owners and taxpayers, prominently identified with local activities.

The railroads issued between three and four hundred thousand pay checks in Arkansas last year, and their total 1937 disbursements for wages in the state amounted to $19,245,131.

This constant stream of railway paychecks and vouchers flows swiftly into the channels of trade—through grocery stores, variety stores, clothing stores, drug stores, boot and shoe stores, furniture stores, filling stations, theaters, banks, and through doctors, dentists, churches, lodges, tax collectors and so on—much of it moving through several hands and contributing directly or indirectly to business activity in every community in the state.

As in the case of purchases, railway earnings influence the extent of railway expenditures for labor. Nearly 45 cents out of every dollar of railway revenues are paid out in wages, and payrolls rise and fall with railway earnings. When traffic is diverted from the railroads to other forms of transportation, or when general business activity declines, employment is curtailed accordingly, while any increase in traffic and revenues is immediately reflected in increased employment and payrolls.

Taxes represent another important contribution of the railroads to the wellbeing of Arkansas. Taken as a whole, the railroads outrank every other industry in the state in their contributions to the support of state and local governments.

(*Continued on page* 58)

● Whitcomb Locomotives are expertly designed and engineered as a complete, efficient unit. No extra trappings need be hung on to make them perform under critical conditions—no makeshift parts are added as an afterthought. This perfection of design and performance is the result of Whitcomb's long experience in building industrial locomotives. No shortcuts or compromises are made in order to gain a price advantage—but the extra value the Whitcomb represents reduces upkeep expense and increases the return on your investment.

An important feature is the modern, Whitcomb type locomotive transmission, with four speeds in either direction. Each model, especially designed to provide an adequate margin of safety over the most severe load that can be imposed—perfectly balanced to meet the needs of the job—constructed by veteran workmen familiar with operating requirements in the field and sound manufacturing practices. It is securely anchored in the massive, rugged Whitcomb frame. Compare both price and quality, when you choose a locomotive.

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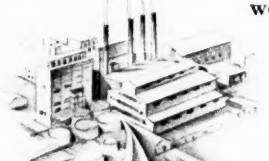

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Launching of the Esso Baltimore

The Esso Baltimore, third of the four 13,000 ton 13 knot tankers being built for the Standard Oil Company of New Jersey, recently slid down the ways at Sparrows Point, Maryland, sponsored by Mrs. Howard W. Jackson, wife of the Mayor of Baltimore.

Built by Bethlehem Shipbuilding Corporation, this vessel, like its sister ships, conforms to the new structural design embodying the fluted bulkheads and longitudinals used for the first time in these particular vessels. With an overall length of 463 feet and 443 feet between perpendiculars, breadth of 64 feet and depth of 34 feet 10 inches, there is a draft of 28 feet 4 inches. The two longitudinal and seven transverse bulkheads dividing the tank space will thus permit the 106,400 barrel cargo to be carried in as many as 24 different grades of oil if necessary. Provision for dry cargo is supplied by a large hold in the forward part of the ship.

The cargo pumps, situated between the oil tanks and machinery space, are of the rotary type and include two units of 2,800 gallon per minute capacity and one unit of 1,000 gallon per minute capacity. This provides for the unloading of the ship's entire cargo in less than twelve hours.

Propulsion consists of a single four blade propeller, driven through reduction gears by one high pressure and one low pressure cross compound turbine.

At the luncheon tendered Mrs. Jackson after the launching ceremony, Mr. J. Willis, general manager of the Bethlehem Shipbuilding Corporation, said that the great shipbuilding activity now going forward at Sparrows Point together with the vast steel industry similarly located, reminded him of the day in 1914 when he was with Mr. Schwab and heard him announce the taking over of the Sparrows Point plant. At that time Bethlehem was to spend $50,000,000. Since then the sum expended amounts to $200,000,000.

The last of these four tankers is expected to be launched next month. Meanwhile work has been started on the first of three 16,300 ton 18 knot tankers for the same company which will incorporate national defense features required by the Navy for auxiliary ships of this type. In addition, three other tankers for other concerns have also been contracted for.

Detroit Stoker Company Observes Anniversary

According to estimates, the North American continent holds approximately two-thirds of the world's coal supply, and for this reason, coal is even more of a basic fuel in the United States than in foreign countries. When burned with a good mechanical stoker, an efficiency is obtained which so closely rivals the efficiency of oil-burning equipment, that coal proves to be a very economical fuel. It is natural, therefore, that the Stoker Industry, which contributes so much to the efficiency and economical use of this fuel should have enjoyed such satisfactory growth through the years.

Forty years ago, automatic stokers were more or less of a curiosity, but they have now been developed to the point where they are considered a necessity in the elimination of waste and smoke for boilers. An outstanding contribution to the development of the Stoker Industry has been made by the Detroit Stoker Company, which is celebrating this year the 40th anniversary of its establishment. The company manufactures stokers exclusively, in many sizes of both the underfeed and overfeed types, and has made thousands of installations in all parts of the United States, Canada and Europe, developing a large number of different types to meet the need of handling changing coals and changing load conditions. It has a large and modernly equipped plant at Monroe, Michigan, near Detroit, and a factory at London, Canada, where stokers are made for the Canadian trade.

With the use of Detroit Stokers, it is declared that bituminous coal from all sections may be burned without excessive preparation, and that high plant efficiency is attained, boiler capacity increased, power requirements for operation reduced, and a higher return on investment in generating equipment secured. Upon request, the company will send a booklet, "Steam Generation in the South," to those interested.

Southern Alkali Corporation Makes Chlorine

(*Continued from page 27*)

vals for use in case of necessary repair work.

Oyster shells, which are used as a source of lime, are readily accessible in Nueces Bay adjacent to the plant. Cheap fuel and reasonable labor rates were also favorable factors. In the early development of the plant site, test shells for fuel gas were drilled on leased territory nearby. These test wells not only produced gas, but they also tapped a considerable oil pool and the by-products from this source have been satisfactorily utilized.

Though originally laid out for the production of soda ash and caustic soda only, the newly completed addition of this unit for the manufacture of chlorine, will materially increase the output of the plant at only moderate outlay. With an abundance of salt brine, ample fuel, a power house, and evaporators, all of which could be extended to handle chlorine, salt, and added caustic production at a small additional cost, the addition of this chlorine unit to the plant output was a logical step.

The chlorine plant, constructed by the same concern which built the original plant, is a striking example of the use of modern methods in the arrangement of operating units for the continuous flow of materials. The experience in this field of engineers and operators of both Columbia Chemical Division and Southern Alkali Corporation, resulted in many special features being incorporated in the design of the equipment.

Hooker Electrochemical Company's cells were installed for the production of chlorine with sodium hydroxide and hydrogen from electrolysis of salt brine. While the efficiency and volts for individual cells have been improved, recent practice in operation of electrolytic cells has tended toward the use of a larger number of cells in series, with consequent higher voltages on the cell circuits. Former practice seldom exceeded 250 to 300 volts per circuit, while recent installations have been made up to 500 and even 800 volts. In the new plant at Corpus Christi the new cells operate at 625 volts.

The cell house, which is the most important building in the chlorine group, is so situated as to permit almost unlimited extension. Other units required for the production of chlorine were: brine purification system, rectifier equipment for converting alternating current to direct current, cooling, drying, and liquefaction units, storage and shipping facilities, and an addition to the boiler house and electric generating plant. Evaporators, filters, and other equipment were also installed for the refining of the salt obtained as a by-product from the chlorine plant.

All the chlorine from this plant is shipped in liquid form. In order to liquefy the gas, two-stage cooling was employed using CO_2 as a refrigerant in the final stage and carrying the temperature to —40° F. Shipments are made in various size containers, from 100 pound cylinders to tank cars.

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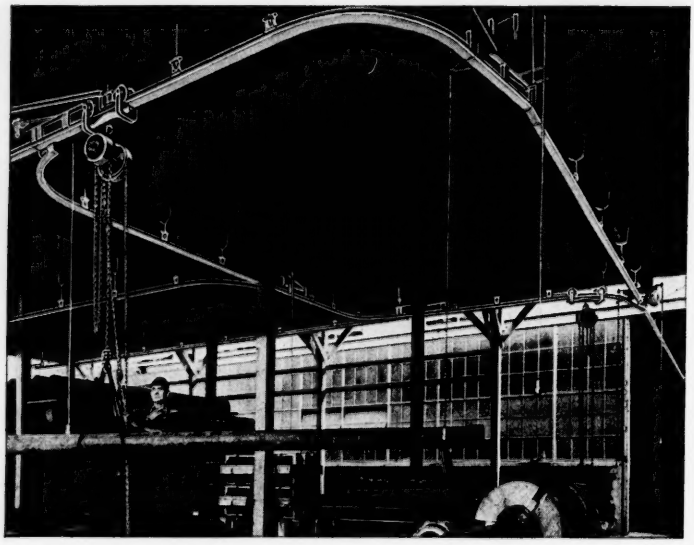

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Railway Expenditures In Arkansas

(*Continued from page 56*)

In 1936, the latest year for which figures are available, their aggregate tax payments in Arkansas totaled $2,039,642, which was at the rate of $481 for each mile of railroad in the state. Based upon the latest analysis of railway taxes, approximately two-fifths of the railway tax dollar in Arkansas goes to the general support of state and local governments and to build and maintain highways and bridges, and the remaining three-fifths goes to support the public schools. It is estimated that railway taxes allocated to schools in Arkansas are sufficient to defray the public cost of educating around 43,000 Arkansas children.

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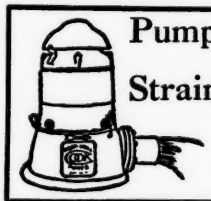

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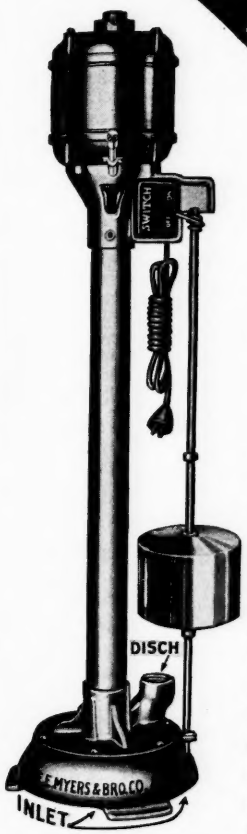
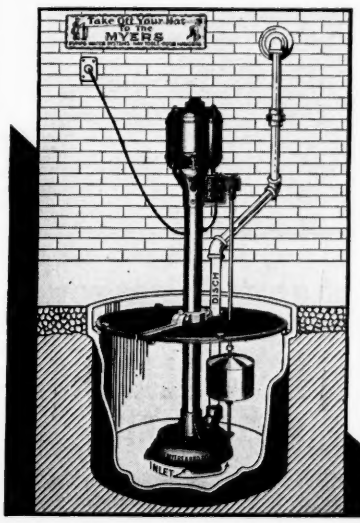


At the turn of late winter into spring and from then on until summer arrives, flooded cellars and basements are common in most localities. Collectively, loss and damage throughout the country during this period is enormous, so let's not overlook the opportunity Myers Sump Pumps bring to you for profitable business at times like this. More dependable than ever, attractively priced, easy to install and operate, they automatically provide basement or cellar drainage that reduces excessive moisture or flood hazards to a minimum.



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PUMPS - WATER SYSTEMS - SPRAYERS - HAY TOOLS DOOR HANGERS

United States Cotton Exports

Exports of lint cotton from the United States in April totaled 377,000 bales valued at $19,634,000 compared with 426,000 bales valued at $22,632,000 in March and 373,000 bales valued at $27,674,000 in April 1937, according to analysis of the export statistics by the U. S. Bureau of Foreign and Domestic Commerce.

Total exports for the nine months, August to April, aggregated 5,034,000 bales valued at $277,178,000 compared with 4,762,000 bales and $324,124,000 for the corresponding nine months of 1936-37, representing an increase of 272,000 bales, or 5.7 per cent, in quantity but a decrease of $46,946,000 or 14.5 per cent, in value.

As compared with the figures for the nine months of 1936-37 smaller shipments were recorded for Japan and Canada while larger shipments were shown for the other important destinations.

Exports by principal countries for nine months August to April follow:

	Bales		Dollars	
	1937-38	1936-37	1937-38	1936-37
United Kingdom	1,473,000	1,027,000	79,100,000	68,718,000
France	694,000	632,000	39,231,000	42,667,000
Germany	615,000	574,000	34,916,000	39,644,000
Japan	555,000	1,355,000	29,676,000	91,763,000
Italy	438,000	313,000	23,811,000	21,866,000
Canada	197,000	224,000	10,614,000	15,231,000
Poland	182,000	153,000	10,311,000	10,444,000
Belgium	171,000	139,000	9,733,000	9,441,000
Netherlands	106,000	78,000	6,198,000	5,499,000
Sweden	74,000	74,000	4,245,000	5,266,000

New Data on Water Supplies

The Department of Commerce, through the Industrial Marketing Unit, announces the release of exhaustive information on the problem of city water supply to meet increasing industrial demands. It presents tables on the available water supply of cities of 20,000 population and over as of January 1, 1937, indicating the source of supply and the delivery capacity of the water works system.

Manufacturers seeking new locations will find the information of particular value and also manufacturers of equipment which require large supplies of water for successful operation. Under the title of "Effective City Water and Sewerage Facilities on Industrial Markets," the book is available at the Department of Commerce for ten cents per copy.

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